

BOTANIC GARDENS  
and  
NATIONAL HERBARIUM



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**QUEENSLAND NATURALIST**

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AND NATURE-LOVERS' LEAGUE

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**PROCEEDINGS.**

**ANNUAL MEETING, 17th FEBRUARY, 1936.**—The Chair was occupied by the President, and about forty members were present. Mrs. Lethbridge was elected to membership of the Club. Dr. W. H. Bryan stated that he had received inquiries from a Californian correspondent, Mr. J. Smith, asking to be put in touch with any naturalists in Queensland interested in diatoms. Anybody having diatom material or interested in the subject is asked to communicate direct with Dr. Bryan at the Queensland University.

The attention of members was drawn to the proposed open season for opossums. It was proposed by Dr. D. A. Herbert and seconded by J. H. Simmonds and carried unanimously that a letter be sent to the Minister for Agriculture (the Honourable F. W. Bulcock) suggesting that careful enquiries be made before action be taken, and that the law forbidding the use of spotlights be enforced if the season was opened.

Annual reports were read by the Honorary Secretary, the Honorary Librarian, and the Honorary Treasurer. The Financial Statement showed a credit balance of £100/1/9. Officers for 1936 were elected as stated on the inside page of the cover of the present issue.

Exhibits included shells from Phillip Island by Mrs. Williams, case-hardened clay pebbles by Miss Bumstard, a series of photographs showing the opening of a spider lily (*Hymenocallis*) by Mr. J. Nebe; and a cone of a Bunya pine by Mr. G. H. Barker. Mr. Tilse showed a series of marine specimens obtained from Japan arranged in small glass jars for the use of students.

The retiring President delivered an address on "The Mammals of Australia."

**EVENING MEETING, 16th MARCH, 1936.**—The Chair was occupied by the President, Mr. J. G. Young, and about fifty members were present. Mr. I. W. Helmsing was elected a member of the Club. Reports on the excursions to Aspley were given by Dr. E. O. Marks (Geology) and Mr. C. T. White (Botany). The principal

business of the meeting was an interesting lantern lecture on "Giants of the Past" by Mr. H. A. Longman, Director of the Queensland Museum.

Reference was made to the destruction of the largest plant in the *Macrozamia Denisoni* grove on Tambourine Mountain, and it was hoped that a notice would be erected indicating that the area was a reserve specifically for the preservation of these wonderful plants.

EVENING MEETING, 20th APRIL, 1936.—The Chair was occupied by the President, Mr. J. E. Young, and forty-two members were present. Mesdames Davies, Ringrose and Stoker and Messrs. Salkeld, Wetherell and Love were elected to membership of the Club. Reports on the excursions to the Upper Albert River were given by Dr. W. H. Bryan and Dr. E. O. Marks (Geology), and Mr. G. H. Barker (Ornithology). In commenting on the report on the birds, Mr. Herbert Curtis stated that possibly shortage of food supply might cause large flocks to be driven into a new and more suitable locality. For instance, last winter had been a hard one, and satin birds had been more numerous on Tambourine Mountain than usual. An interesting lecture dealing in a general way with the excursion was given by Miss H. Clarke.

Exhibits included: (a) lantern slides by the President from photographs taken at the camp, including those of a large beech tree (*Nothofagus*), a Grass Tree (*Xanthorrhoea*) forest, a Hoop Pine (*Araucaria Cunninghamii*) 21 feet in girth, Red Cedar tree (*Cedrela*) 45 feet in circumference, (b) specimen of coal from the Upper Albert River by Dr. E. O. Marks, (c) specimen of a brush-tailed marsupial rat from Tambourine Mountain by Mrs. Herbert Curtis, (d) shells from the Upper Albert River by Miss James, (e) stone tomahawk found near the Upper Albert River camp site by Mr. J. E. Young, and (f) photographs of the camp by Messrs. G. R. Rowley and J. Nebe.

EVENING MEETING, 18th MAY, 1936:—Dr. D. A. Herbert (Vice-President) occupied the Chair, and about 60 members were present. The principal business of the meeting was an address by Professor Francis E. Lloyd, Emeritus Professor, McGill University, Montreal, Canada. The lecturer, who is the world's leading authority on carnivorous plants showed a series of slides and moving pictures of insectivorous plants from all parts of the world. Professor Lloyd is an accomplished lecturer, photographer, and artist, and some of the slides were beautifully and richly coloured.

EVENING MEETING, 15th JUNE, 1936.—The Chair was occupied by the President, Mr. J. E. Young, and about sixty members were present. Mr. E. France was elected a member of the Club. The President extended a welcome to the Honorary Secretary of the North Queensland Naturalists' Club, Mr. J. A. Wyer, who stated in reply that his club has a membership of approximately one hundred, and was endeavouring to protect native plants and animals and to educate the public generally of North Queensland into the value of preserving, as far as possible, the native flora and fauna.

Mr. T. Gedda gave a most interesting and instructive lecture on Sweden, illustrated by a very fine series of lantern slides. The lecturer took his audience by word and picture from the industrial southern part of Sweden through the agricultural centre to the forests of the far North.

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## QUEENSLAND NATURALISTS' CLUB.

### ANNUAL REPORT FOR YEAR ENDING JANUARY 31st, 1936.

The Council of the Queensland Naturalists' Club has pleasure in submitting the 30th Annual Report of the work of the Club.

MEETINGS.—Ten Council Meetings, nine evening meetings, a Wildflower Show, and eleven Field Excursions have been held during the year.

The attendance at evening meetings has been good, the average being 40. Interesting lectures and papers on many branches of Natural History have been given during the year, many being illustrated with lantern slides. The lectures included: Mr. E. W. Bick, Dr. F. W. Whitehouse, Mr. J. Nebe, Mr. J. E. Young, Mr. S. T. Blake, M.Sc., Mr. H. W. Hermann, Mrs. Estelle Thomson, Mr. G. H. Barker and Dr. W. H. Bryan.

Reports of Excursions have been given and Exhibits shown by various members.

The Wildflower Show was held on September 14th in the Albert Hall. Flowers were excellent in quality but not in as great quantity as on some former occasions.

MEMBERSHIP.—Ten new members have been elected during the year; the membership list is now 126.

NATURE LOVERS' LEAGUE.—A series of lectures have been given in State Schools by Mrs. White of Woodhill, and a number of certificates sold through her efforts.

“QUEENSLAND NATURALIST”.—Two issues of the journal were published. The Hon. Editor appeals for more material.

EXCURSIONS.—Eleven field excursions were held during the year. The Annual Easter Camp was held at Numinbah, when a most interesting and profitable time was spent by 57 members and friends. Week-end visits were made to Bald Knob (Labour Day) and Marcochydore (King's Birthday), but the attendance was poor.

Eight afternoon outings were held during the year and visits made to Bishop Island, Dawson Road, Sherwood Arboretum, One Tree Hill, the Blunder, Sunnybank, Enoggera Waterworks, and the Museum. Many branches of Natural History were served by these trips. Those to the Blunder and the Museum were the best attended. Members were hospitably entertained by Mr. and Mrs. Nixon at their home at Sherwood after the visits to the Arboretum, and by Mr. H. A. Longman (Directors) and Mrs. Longman at the Queensland Museum.

BIRD AND ANIMAL PROTECTION.—After a strenuous effort, Mr. F. L. Berney, the well-known ornithologist of Central Queensland has succeeded in having the Bustard placed on the list of fully protected birds, and this club congratulates him on this fine achievement.

During the visit of Club Members to Enoggera Waterworks, the shyness of birds suggested that shooters were operating on the Reserve. In response to a request from the President, information was sent to him which confirmed the suspicion. A protest was sent to the Water and Sewerage Board, when a promise was given that enquiries would be made and the offenders dealt with if discovered.

From time to time the Club has had occasion to draw the attention of the authorities to various acts of vandalism on the islands off the coast of the State, and it is most pleasing now to be able to report that most of these islands have now been proclaimed sanctuaries for bird and animal life. This in itself will act as a deterrent against wrongdoers, but it is hoped that the Government will not rest at the declaration but will take effective steps in the matter of policing these areas and make them actual sanctuaries.

LIBRARY.—The Hon. Librarian (Mrs. G. L. Jackson) reports:—

The Magazine Section of the Library still continues to be well patronised by Members.

About 150 magazines were lent during the year, which number is slightly below that of last year, probably owing to the fact that the usual monthly meeting was omitted



in July in favour of a lecture given at the University by Dr. Jiri Baum.

The number of books lent during that period has definitely declined, owing perhaps to the fact that few new ones have been added to the Library. During the year only 30 volumes have been lent as against 80 the previous year.

There have been a few donations of books made to the Library. Miss G. Wood (a past member) sent a number of works on Conchology, and Mr. J. Nebe and Mr. G. H. Barker have continued their contributions of magazines.

I would suggest that, as magazines seem to be by far the most popular form of literature borrowed, the Club adds the English "Geographical Magazine", and the "Walkabout" magazine to the Library. These would, I am sure, be a most welcome and popular addition to the Library. We cannot, owing to lack of space, add too many books to the Library, but a large number of magazines can be accommodated in a space occupied by but a few books.

G. H. BARKER, President.

(Miss) E. E. BAIRD, Hon. Secretary.

## EXCURSION TO UPPER ALBERT RIVER, EASTER, 1936, GEOLOGICAL NOTES

*By E. O. MARKS, B.A., M.D.*

From the geologist's point of view the great attraction of the excursion to the Upper Albert was the opportunity it gave to investigate further the problem of the age or ages of the volcanic rocks of south-east Queensland. This problem has already been discussed in the notes on the previous excursions to Canungra and Numinbah.

For those who are not familiar with the local geology or have not the previous notes at hand, it may be recalled that the mountainous region of the Lamington National Park and its vicinity, is formed by the remnants of a formerly continuous plateau of volcanic materials resting on a basement of mesozoic sandstones and shales, and on the still older schist series. This volcanic plateau has been cut into by the streams, the resulting valleys in many places exposing the underlying sedimentary rocks. The streams have "dissected" the formerly continuous plateau into the mountains and smaller plateaus as we now know them. In some places denudation has gone so far that only a comparatively low ridge separates the adjoining

valleys, as was found to be the case near the camp where only a low divide separates the Albert waters from Widgee Creek which is a tributary of the Logan.

The sedimentary rocks exposed in the valleys of the Upper Albert, and Widgee and Christmas Creeks belong to the Walloon coal measures of Jurassic age, and we say some outcrops of coal characteristic of the Walloon series. The volcanic rocks are mostly lavas and fragmentary materials of the dark basaltic types but light-coloured trachytic or rhyolitic rocks are also prominent.

The determination of the period in which these volcanic rocks were extruded has long been a controversial, perhaps one might say, a burning, question to geologists. The earlier geologists, Dr. R. L. Jack and Mr. W. H. Rands thought all the volcanic rocks belonged to the then termed Trias-Jura period, that is, that they were more or less contemporaneous with the sediments now classed as Jurassic. Dr. H. I. Jensen considered that they were all of much later age—Tertiary. In 1909 the writer of these notes, after working between Brisbane and Beaudesert, was inclined to a contemporary age for some, but not for all of the volcanic rocks encountered, but had not found any unequivocal evidence. Certain basalts near Brisbane and Ipswich had then long been accepted as definitely proved of Tertiary age. A flying, or rather a hurried equestrian visit to Christmas Creek, with a hurried before-breakfast examination of a certain outcrop shown to him by Mr. Buchanan, seemed to show quite definite evidence that some of the volcanic material was contemporary with the coal measures. A vertically tilted shale and sandstone had, so he recorded, rounded fragments of volcanic rock included in the sandstone.

Mr. R. A. Wearne, in another area, and for other reasons at about this time came to the same view that part of the volcanic rocks were of Walloon age,

In 1916 Professor H. C. Richards took up the study of and came to the conclusion that all the volcanic rocks were later than the Walloon, regarding them all as of Tertiary age. He especially visited the section on Christmas Creek, and described the vertical sediments as being a mass of shale many feet in diameter, included in a volcanic agglomerate. The shale contained characteristic mesozoic fossils, and the section demonstrated clearly to him that the agglomerate was of later age than enclosed shale. He did not refer to having observed any sandstone in the section, but on the other hand mentions that it was remarkable that the previous observer should have regarded the volcanic material as sandstone.



With such divergent interpretations of the one exposure, it was delightful to be able to re-examine it in conjunction with Professor Richards and Dr. Bryan. Though not a large section it is certainly very remarkable, if not unique, for it gives a clear "proof" that two opposing views are correct. We found the shale to be covered by a soil slip, but, beside the position of the shale is typical mesozoic sandstone with vertical dip, and beside this again is volcanic fragmentary rock of which there is an extensive exposure.

Following (1) along the line of the sandstone strata to near the water's edge the volcanic rock appeared to have been injected into and to have flowed round the broken end of the strata. By following another line (2) across the stratification the sandstone was found to become less typical, and to change gradually—that is not suddenly—though rapidly into the volcanic aggregate. Starting from a pure sandstone it contained more and more volcanic material and less and less sand. Some of the volcanic fragments appear waterworn. A line of demarcation between the two rocks was sought for but not found, samples from either side of the only suggested line leaving no doubt, on examination, that they were the same rock of sand and volcanic material.

This second line of section shows, therefore, quite clearly that the volcanic rock is continuous with the mesozoic sandstone, and contemporaneous with it, while the first no less clearly shows it to be more recent.

We like to think that Dame Nature never lies, but at Christmas Creek, within a few yards, she tells two plain and convincing, but utterly inconsistent, stories. There seems to be some room for complaint on the part of the simple geologist who seeks only the truth.

As well as the section at Christmas Creek, we were able to visit on Widgee Creek an occurrence recorded by Mr. C. C. Morton, where a basalt flow or sill dips parallel to the strata. As exposed now there seems no reasonable doubt that the basalt is a sill, or dyke, intruded between the layers of sedimentary rock. It is necessarily later than the strata it is injected into, but might be only a little later in the Mesozoic, or much later in the Tertiary period.

Perhaps future excursions will elucidate the problem which so far has become more complicated the more we see of it.

## AN ADVANCING ANTARCTIC BEECH FOREST.

By D. A. HERBERT, D.Sc., BIOLOGY DEPARTMENT, QUEENSLAND UNIVERSITY.

Forests of Antarctic beech (*Nothofagus Moorei*) fringe the Queensland border in the highest parts of the Macpherson Range, reaching their eastern limit at Mount Hobwee. Favouring the southern sheltered slopes as they do, they extend over the New South Wales border, which runs, roughly, east and west along the watershed of the range. In New South Wales they are found in the upland brushes bordering the New England Tableland, at the headwaters of the Bellinger, McLeay, Barrington, Manning, and Gloucester Rivers. In the Dorrigo forests (N.S.W.) the trees attain a height of 100 to 140 ft. and a girth of 9 to 10 ft. In the Macpherson Range forests, such as those of Mount Hobwee and Mt. Wanungara, the beeches do not attain this stature; they are usually well under 100 ft. in height, and often not much more than 30 or 40 ft. They have a peculiar habit of growth, a ring of trees surrounding a central decayed trunk, from which they have sprung. Such a clump might be described as a caespitose tree, though it commenced as a normal single-stemmed tree. This type is the rule in the easily accessible beech forests of South Queensland. Seedlings and saplings are rare. The forest is composed of gnarled old trees, and the impression they give is of great age and decay.

The heavy investment of epiphytes—mosses, lichens, filmy ferns, *Cyclophorus serpens*, *Polypodium pustulatum*, *Asplenium falcatum*, *Asplenium nidus*, *Platyserium grande*, and *Dendrobium falcorostrum*—and the climber *Fieldja australis*, which creeps up the stem, rooting and branching amongst the decaying bark and mosses, heighten the impression of age. Even the fructifications of some of the fungi, which are the agents of decay, are moss-covered. The brackets of *Fomes lucidus* are particularly noticeable for their thatch of moss; shorter-lived fructifications, such as those of the luminescent *Panus conchatus*, of course, do not present the opportunity for epiphyte colonization.

No other rain forest tree in South Queensland has such a load of epiphytes.

Popular descriptions of the beech forest stress the great age of the trees, and often suggest that they are relics of an ice age, surviving in the mountains, but moribund and out of their element. Such ideas are far from the truth. The beech forests of South Queensland occupy

a similar environment to that in which beeches grow, not only in New South Wales, Victoria, and Tasmania, but in New Zealand, and the south of South America. They grow in what would be described under Thorntwaite's system as an AB'r. climate, or, in other words, wet, mild mesothermal, and with moisture abundant at all seasons. They occupy the moister parts of the Macpherson Range, particularly where the cloud-belt maintains damp conditions. Surrounded by rain forest of the usual South Queensland type, the beech forests are infiltrated with many of its species. *Quintinia Sieberi*, the possum tree, *Weinmannia lachnocarpa*, *Alsophila Leichhardtiana*, the prickly tree fern, *Dicksonia antarctica*, *Bacularia monostachya*, the walking-stick palm, are found in both types of rain forest—the scrub and the beech. The outstanding difference is the dominance of the single species, *Nothofagus Moorei*, coupled with the fact that only exceptionally do isolated specimens occur away from the main beech forest. In these mild temperate rain forests the beeches represent the most hygrophytic community. At the other end of the series, such trees as *Tristania conferta*, the scrub box, dominate their associations, as at the Giant's Garden on the Upper Coomera.

Widgee Mountain is on a spur of the Macpherson Range. On its exposed northern side it is clothed by an open Eucalyptus forest, in which *Xanthorrhoea arborea* is conspicuous. This open forest runs right along the ridge, but some yards down on the southern side the rain forest rises up sharply. It consists partly of the typical vine scrub, but largely, and especially in the gullies, of beech forest. Big old gnarled trees are common, but in contrast to most of the other beech forests of the Range, there are a large number of young trees. Some of them are fine, straight specimens, with no sign of decay. Seedlings and saplings are common. At some points there is definite evidence of the recent advance of the beech forest into territory formerly occupied by the open forest. At the highest point on the ridge the beech forest actually comes up over the top, and young beeches are found surrounding trees of *Eucalyptus Banksii*. The most remarkable thing, however, is the fact that *Xanthorrhoea arborea* persists under the new canopy. All round the grass trees are beeches with epiphytes, mosses and ferns, and the habitat is about as unlikely as it could be for *Xanthorrhoea*. Yet these plants have survived the changing environment, and are growing there with epiphytic mosses, ferns, and orchids on their trunks. The epiphytes are of the same species as are found in the beech forest.

On one grass-tree, about four feet in height, *Asplenium falcatum*, *Dendrobium speciosum*, *Cyclophorus serpens*, and *Polypodium pustulatum* are associated. Another had the climber, *Fieldia australis*, rooting on its trunk. The trees surrounding the Xanthorrhoeas and Eucalyptus are about twenty feet in height, and are all young, vigorous trees. Beyond the edge of the thicket, the vanguard of the advancing forest is represented by seedling beeches in all stages up to about six feet in height. They were scattered through the open forest for a distance of some twenty yards down the northern slope, and are strong, vigorous young plants. There seems no reason why they should not grow to maturity, provided bush fires do not sweep the area before they form a closed community. It will be interesting to see how long it is before the Xanthorrhoeas and Eucalyptus are finally suppressed in the area that has already been effectively colonized.

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EASTER EXCURSION, 1936.  
UPPER ALBERT RIVER.  
LAMINGTON NATIONAL PARK.  
BIRDS.

By Geo. H. Barker, R.A.O.A.

The weather during the outing was fine, and, although cold at night, was quite warm by day. A number of birds were seen, though very few were counted in any numbers, at least as far as my own observations were concerned. One exception must, however, be mentioned, and that was the Sulphur-crested White Cockatoo, of which as many as fifty were seen at one time. Morning and evening this noisy, screeching nuisance would be seen and heard, sometimes on the hill side, sometimes in wheeling flocks, often after sundown, before settling down for the night. Magpies and Magpie-Larks and Crimson Rosellas were also much in evidence at all times, and with a small flock of Dusky Wood Swallows were about the only other birds seen in companies.

Of the fifty-eight species appearing on my list for the holiday, most of them were the ordinary species one would see on any general excursion on a Saturday afternoon in the Brisbane district.

Among the unusual specimens might be mentioned the Fruit Pigeons, of which we saw two species, The



Wampoo and Brown Pigeon. Next come the Cockatoo, the White mentioned above, and the Black. Of the latter Mrs. Mayo identified the Red Tailed and the Yellow Tailed species. The Noisy Pitta was not seen personally, but Mr. Helmsing reported it calling at night on the hillside near us, and this is the third record I have of this curious nocturnal habit of the Dragon Bird. The Spectacled Fly-Catcher and Rose Robin were also among the unusual finds, and Bell Miners, Bower Birds, Cat Birds, and Rifle Birds were the other uncommon items recorded for the four days.

Appended is the full list:—

1. Purple-Breasted Pigeon—Wampoo (*Megaloprepia magnifica*).
2. Brown (Pheasant) Pigeon (*Macropygia phasianella*).
3. Peaceful Dove (*Geopelia placida*).
4. Bar-shouldered Dove (*Geopelia humeralis*).
5. Spur-Winged Plover (*Lobibyx novae Hollandiae*).
6. White-faced Heron (*Notophyx novae Hollandiae*).
7. Nankeen Night-Heron (*Nycticorax caledonicus*).
8. Wedge-tailed Eagle (*Uroaetus audax*).
9. Red-Tailed Black Cockatoo (*Calyptorhynchus Banksi*).
10. Yellow-Tailed Black Cockatoo (*Calyptorhynchus funereus*).
11. White Cockatoo (*Kakatoe galerita*).
12. Crimson Rosella (*Platycercus elegans*).
13. Pale-headed Rosella (*Platycercus adscitus*).
14. Azure Kingfisher (*Alcyon azurea*).
15. Laughing Kookaburra (*Dacelo gigas*).
16. Noisy Pitta (Dragon Bird), (*Pitta versicolor*).
17. Welcome Swallow (*Hirundo neoxena*).
18. Grey Fantail (*Rhipidura flabellifera*).
19. Wagtail (*Rhipidura leucophrys*).
20. Restless Flycatcher (*Seisura inquieta*).
21. Spectacled Flycatcher (*Monarcha trivirgata*).
22. Jacky Winter (*Microeca fascinans*).
23. Rose Robin (*Petroica Rosea*).
24. Northern Yellow Robin (*Eopsaltria chrysorrhoa*).
25. Golden Whistler (*Pachycephala pectoralis*).
26. Grey-Shrike-Thrush (*Colluricincla harmonia*).
27. Magpie Lark (*Grallina picata*).
28. Eastern-Shrike-Tit (*Falcunculus frontatus*).
29. Eastern-Whip-Bird (*Psophodes olivaceus*).
30. White-browed Babbler (*Pomatostomus superciliosus*).
31. Little Thornbill (*Acanthiza nana*).



32. Yellow-tailed Thornbill (*Acanthiza chrysorrhoa*).
33. White-browed Scrub-Wren (*Sericornis fontalis*).
34. Wren (?) (*Malurus* Sp.) ?
35. Dusky Wood-Swallow (*Artamus cyanopterus*).
36. Tree Creeper (?) (*Climacteris* ? Sp.)
37. Spotted Pardalote (*Pardalotus punctatus*).
38. Black-headed Pardalote (*Pardalotus melanocephalus*).
39. Silver Eye (*Zosterops lateralis*).
40. Scarlet Honeyeater (*Myzomela sanguinolenta*).
41. Eastern Spinebill (*Acanthorhynchus tenuirostris*).
42. Lewin Honeyeater (*Meliphaga Lewini*).
43. Yellow-faced Honeyeater (*Meliphaga chrysops*).
45. Noisy-Miner (*Myzantha melanocephala*).
44. Bell-Miner (*Manorina melanophrys*).
46. Blue-faced Honeyeater (*Entomyzon cyanotis*).
47. Noisy Friar Bird (Leatherhead). (*Philomon corniculatus*).
48. Austrn. Pipit (Ground Lark) (*Anthus Australis*)
49. Double-Bar Finch (*Steganopleura Bichenovii*).
50. Red-Browed Finch (*Aegintha temporalis*).
51. Green Cat-Bird (*Ailuroedus crassirostris*).
52. Satin Bower Bird (*Ptilonorhynchus violaceus*).
53. Paradise Rifle Bird (*Ptiloris paradiseus*).
54. Australian Crow (*Corvus cecūlac*).
55. Currawong (Black Magpie) (*Strepera graculina*).
56. Pied Butcher Bird (*Cracticus nigrogularis*).
57. Grey Butcher Bird (*Cracticus torquatus*).
58. Black-Backed Magpie (*Gymnorhina tibicen*).

### GOULD'S MONITOR (*VARANUS GOULDIAE*) .

By F. L. BERNEY (Barcarolle, Jundah, Western Queensland).

My attention was drawn, 14th October, to one of these, a full grown individual, that appeared unusually interested in an excavation it was scratching out on sandy ground. Having made a slanting hole, ten to twelve inches long, with the far end five or six inches below the surface, it appeared greatly taken up with something it had there. I went to see what it was, and found nothing, but loose slightly damp sand, however, digging this out with my fingers unearthed three "goanna" eggs. Pushing the sand over these again, I drew back to watch. The goanna had retreated a few yards only, and on my moving away, returned at once to its treasures.

Annoyed apparently with their having been inter-

ferred with it picked up the three eggs, one at a time, and swallowed them.

There was no mistaking its action. I was too close for that. Picking up an egg with its front teeth, so to speak, it drew back its head and neck out of the hole, gave its head a toss, and the egg was swallowed. Each egg was served the same. The jolly old cannibal! I thought. Then, moving a few feet away, it excavated a new hole, showing as previously more than usual interest in the bottom of it. Half a dozen times it drew back, and half a dozen times it dived its head into the hole, and appeared to push and tramp the sand about some object.

This done it filled the hole by scraping in the loose sand, and, with a final look round, walked off. To satisfy my curiosity, I cleaned out the hole, and found five eggs. Evidently the three that I had seen it swallow, and two more than it had not had time to bury when I first disturbed it, but which must have been somewhere down its throat at the time, the eggs having evidently been laid elsewhere, and carried about until a spot suitable for an incubator could be found.

I do not molest the Monitors, as they are undoubtedly useful in keeping down rabbits, of which there are a few in the neighbourhood. But at times I have to read the "Riot Act," and take a gun to some individual that develops bad habits.

I shot one that raided the fowl's quarters, and cleaned up five new laid eggs, swallowed the lot without breaking one, leaving the nest bedding as clean as if there had never been an egg there; a postmortem disclosed the eggs inside the reptile, but in a somewhat crumpled condition.

This was a big specimen, measuring 4ft. 8½in., and weighed 14lbs., which would be about the maximum size for these parts. Though longer ones are reported, I am sure I have never seen one of five feet. They are much more terrestrial than *V. various*, though doing so at times, they seldom climb trees, and are much cleaner feeders than the relative mentioned. I do not remember ever seeing them eating a putrid carcase.

They don't have things all their own way, for on opening an eight-foot black-headed Python (*Aspidites melanocephalus*) that was killed close by here, I found its last meal had been a three-foot *V. gouldiae*, which had been swallowed, tail first; its shape, and being devoid of feathers or fur, making it immaterial, I suppose, which way it went down.

The goannas swallow china nest eggs without hesitation, and then, after unavailing attempts to digest, re-

gurgitate them, no doubt, as crows and many birds disgorge the indigestable parts of their food.

These notes refer to country on the Thomson, 140 miles below Longreach.

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## ROSE ROBIN.

*By N. Jack.*

Most naturalists would be familiar with that type of country vaguely known as "Scrub," the "Rain Forest" of the Botanist. Should the traveller in these places stand and listen awhile he will hear many strange voices, the agonising wail of the Cat Bird, the "whirr" of the Satin Bird, the crack of the Whip Bird, the dialogue of the Noisy Pittas ("Want to work! Want to work!" they seem to say), are among a few of the noisiest, and a host of others not so fortunate provide their own particular accompaniment to the general ensemble, while his Majesty King Menura challenges them all.

So when, amidst all this clamour a certain elusive note fell upon the writer's ears, he had some difficulty in recognising it. It seemed that he had heard that same note many times before, though in quite a different setting, so he imitated it to the best of his ability, and presently, with a flurry of wings, and a flash of a rosey breast, the owner appeared for long enough to convince the observer that he had met the Rose Robin in his summer retreat. Hidden away among those forest giants he had built his lichen covered nest, a masterpiece of bird architecture. I had no wish to disturb his mate in her domestic duties, much less poke my fingers into her nursery, so I pursued the matter no further.

Now, the writer does not present this as an original discovery, because any one can pick up a Bird Book, and satisfy himself with the bald statement that the Rose Robin (*Petroica Rosea*) frequents the open in winter, and retires to the mountains to breed in the summer, but I have often thought that it would be a good thing for all concerned, if some of our budding Ornithologists had their Bird Books confiscated, and were made to find out a few things for themselves.

"Rosie" is a fascinating creature once you get to know him. To meet him in the tangle of a Queensland jungle is one way of making his acquaintance, but I first had the pleasure of meeting him in the Mt. Cootha district, and gradually pursued his range over a large area

of surrounding country. He is a bird that clings tenaciously to the creeks while on his winter sojourn here. Suddenly appearing from nowhere in particular generally about April, perhaps late in March, a pair of them will select a length of creek, and confine their activities to that particular spot, seldom venturing any great distance away. If you go quietly along, perhaps the female, the more daring one of the two, will flash across your path to snap up an insect. She is a plain brownish bird, with conspicuous white wing bars. If you watch her as she settles, you will see that she never packs her wings, but hangs them at her side with a constant twitching motion, jerking her tail up and down as she does so. The male Rose Robin, as though conscious of his brighter colours, is not so enterprising, but prefers to lurk in the undergrowth, only coming forth occasionally to capture his prey. He is not a brilliant bird, but is clothed in soft grey and delicate pink, with a conspicuous white coral spot. If you can overcome his timidity, you will see that he is also addicted to this wing and tail shaking. He can't keep still, a characteristic Rose Robin habit.

Occasionally you will come across a lone creature with the plumage of the female, but with a suffusion of pink on the breast, an immature male.

"Rosie" is classified with the Flycatcher family. Having the title "Robin" inflicted upon him might suggest relationship with the European Robin, but such is not the case. The term "Robin" has no Ornithological significance, being merely used as a term of endearment for the British Redbreast, just as we use the term "Willie Wagtail" or "Jacky Winter" for some of "Rosie's" family relations.

He captures his prey in the traditional Flycatcher manner, and though by no means a strong footed bird, may be observed occasionally clinging sideways to the trunk of a tree after the manner of the more familiar yellow Robin.

The observer will soon become familiar with his call note, and be guided by same. It is a hard note to describe. Very low, and short, but quite distinctive. Just before he leaves for his mountain seclusion, late August or September, the male becomes more active in courting the female, and develops quite a pretty little song of his own.

Although somewhat played out as a bird resort, in and around the Mt. Cootha Reserve will be found to be a happy hunting ground for lovers of this species, who, with experienced eyes and ears, are almost certain to find quite a number of these pretty little creatures about. Since writ-



ing this article, recently (July 8th), I noted a pair of Scarlet or White Capped Robins, a bird not generally observed in that district. He is a more handsome member of the Australian Robin family than "Rosie," and not quite so restless in his habits, but that, of course, is another story.

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## OBITUARY.

### MR. P. G. SYLOW.

Since the last issue of the "Queensland Naturalist," one of the oldest members, in the person of Paul Ludwig Peter George Sylow, died at a private hospital in Brisbane, at the age of 77 years. For 19 years, until his retirement at the end of 1927, he was manager of the Colonial Sugar Refinery Co.'s mill at Brisbane. He was born in Kossor, Denmark, in 1859, and was educated as an engineering chemist at the Copenhagen University. He was then one of a party of a Danish expedition to Greenland, this expedition taking the place of military training, which was then compulsory in Denmark. He first became closely associated with the sugar industry when, on his return from this expedition, he joined the staff of the Copenhagen beet sugar refinery. In 1885 he went to Fiji, where he joined the C.S.R. as mill chemist. Later he was transferred first to Auckland, and then to Sydney, as chief chemist. After 17 years service in Sydney he was appointed manager at New Farm.

Mr. Sylow was always keenly interested in scientific subjects, and was a member of the Royal Society of Queensland. For some years he acted as hon. treasurer of the club, and before that as a Councillor, giving valuable advice, particularly as to localities for the club's excursions. He was a great walker, and very well preserved and athletic for his age.

He will be much missed, and our sympathies are extended to his widow and family.



# THE QUEENSLAND NATURALIST

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB  
AND NATURE-LOVERS' LEAGUE

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No. 2

## PROCEEDINGS.

EVENING MEETING, MONDAY, 20th JULY, 1936.—The chair was occupied by the President (Mr. J. E. Young), and about 40 members were present. Mr. G. H. Barker gave a report on the birds seen on the excursion to Mount Coot-tha. Dr. E. O. Marks spoke briefly on the geology of the area, and Mr. C. T. White on the plants. The principal business of the evening was a lecture by Mr. S. L. Everist on the flora of Western Queensland. By means of a large series of lantern slides, the lecturer dealt with the vegetation observed on a journey by car from Brisbane to Cunnamulla via Goondiwindi, St. George and Bollon, thence to Charleville, Tambo, Blackall, Longreach and Winton. A vote of thanks to the lecturer was given by Dr. D. A. Herbert, who described the pictures as among the most interesting he had seen dealing with the flora of Queensland. Mr. Harold Young exhibited a seedling mistletoe attached to an orchid. Parasitisation of orchids by mistletoe is rare. Mr. Dornbusch, of Warwick, forwarded specimens of a knotted wood growth, which was determined as a root nodule of prickly-pear (*Opuntia inermis*).

EVENING MEETING, MONDAY, 17th AUGUST, 1936.—The President (Mr. J. E. Young) occupied the chair, and about thirty members were present. Mr. G. H. Barker spoke of the movement being made in some quarters for permission to cut trees in National Parks, particularly Hoop Pine trees in the Lamington National Park, and moved that a letter be sent to the Minister for Lands (Hon. P. Pease), stating that members of this Club noted with great satisfaction that he had publicly stated that under no circumstances would permission be given for commercial exploitation of timber standing in National Parks. Mr. J. F. Bailey gave a most interesting lecture on palms illustrating his remarks by a large series of lantern slides of Australian palms growing in their natural habitats, and of native and exotic palms growing in the Botanic Gardens of Brisbane, Melbourne, Sydney and

Adelaide. Mr. H. E. Young exhibited a number of native orchids showing variation in size and colouring of the flowers.

WILD FLOWER SHOW AND NATURAL HISTORY EXHIBITION, SATURDAY, 12th SEPTEMBER, 1936.—In spite of the dry weather, the supply of flowers was good and of excellent quality. Representative collections of flowers from the North Coast were received from Miss H. Makepeace, Tewantin; Mrs. Yabsley, Coolum; Mrs. J. Waraker, Caloundra; Mrs. J. E. Holmes, Maroochydore; and Miss R. Davies, of Bribie Island. A collection of specimens of wild flowers from North Queensland was received from the Hon. Secretary of the North Queensland Naturalists' Club (Mr. J. Wyer). A collection of flowers from Stradbroke Island was received from Mr. M. Ahlberg. Representative collections from the South Coast were received from Mrs. G. Rankin, Beechmont; Miss M. Birt, Southport; Mrs. Latimer, Nerang; Mr. W. Rudder, Springbrook; Mr. and Mrs. Denis Curtis, Upper Albert River; and Mr. and Mrs. Herbert Curtis, Tambourine Mountain. The only collections of plants received from the Granite Belt, exclusive of the State School exhibits, came from Mrs. S. E. Slaughter, Thulimbah. Specimens from inland parts were received from Miss K. Morris, Bourke, N.S.W., and Mr. Ken Jackson, Quilpie. Interstate exhibits included a collection from Kogarah, N.S.W. (Miss S. Y. Harris), South Australia (Mr. Ising), and Western Australia (Miss W. Dedman). A large collection of Australian plants, particularly Western Australian varieties, was received from Mr. W. Burdett, of Basket Range, Adelaide, from his large garden of Australian plants. Of native flowers growing in gardens, specimens of Waratah and Geraldton Wax Flower were received from Mr. J. E. Young. Sturt's Desert Pea from Mr. W. Mathieson, Chorizema from Mrs. H. Love, and Callistemon from Mr. J. H. Simmonds. The State School Competition attracted six entries. Prizes were awarded to Mullimbimby (1), St. Bernard's (2), and Thulimbah (3). There were seventeen entries in the Floral Display Competition, prizes being awarded to Mrs. G. L. Jackson (1), and Mrs. D. Williams (2). Natural history photographs, particularly of wild flowers, were shown by Mr. R. L. Higgins, Mrs. Herbert Curtis, Miss H. Clarke, Mr. R. W. Helmsing and Mr. Howard Tilse. A number of stereoscopic views of scenic and natural history subjects were display by Mr. J. Nebe. Other exhibits included shells by Miss M. Clark and Mr. J. H. Simmonds, insects by Mr. F. A. Perkins and Mr. D.

Curtis, a case of love birds, showing variety in their colouring by Mr. H. A. Longman, Director of the Queensland Museum, mosses by Miss E. B. Carrick, and fossils by Miss D. Williams. Owing to insufficient public support this year, the Wildflower Show showed a loss of 13/-.

SPECIAL MEETING, MONDAY, 5th OCTOBER, 1936.—The President (Mr. J. E. Young) occupied the chair, and about 17 members and visitors were present. Some bird notes (see p. 37) were read by the Hon. Secretary on behalf of Mrs. W. M. Mayo. A report on the birds seen during the Bribe Island excursion was given by Mr. N. Jack who specially noted the presence of the Satin Fly-Catcher. A most interesting lecture on the work of patrol officers in the Mandated Territory of New Guinea was given by Mr. J. A. Hough.\* The lecture was illustrated by an excellent series of lantern slides and moving pictures.

EVENING MEETING, MONDAY, 16th NOVEMBER, 1936.—The chair was occupied by the President (Mr. J. E. Young), and about 40 members were present. A report on the geology of the excursion to Sandgate was given by Dr. W. H. Bryan. Specimens of a *Cymbidium* from Cracow were displayed by Mrs. Williams. The principal business of the evening was a lecture on the Bechuanaland Protectorate, South Africa, by Mr. E. H. M. Drury, M.B.E., who had spent 25 years in the Territory. The lecture was illustrated by a number of sketches and photographs of the country, particularly of the wild animals. A number of rugs and other articles made by the natives were shown.

EVENING MEETING, MONDAY, 19th OCTOBER, 1936.—The chair was occupied by the President (Mr. J. E. Young), and about 35 members were present. A copy of the book, "Wonders of the Great Barrier Reef," by Mr. T. G. Roughley, was presented to the library by Mr. G. H. Barker. The principal business of the evening was a most interesting address by Mr. J. E. Freeman, Instructor in Fruit Culture, Department of Agriculture and Stock, who gave a talk on his studies in agricultural methods, particularly in fruit growing in Hawaii and the United States.

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\*We regret to state that Mr. Hough was fatally speared by natives soon after his return to duties in New Guinea.

NORTH QUEENSLAND—A NATURALISTS'  
PARADISE.  
THE ACTIVITIES OF THE N.Q. NATURALISTS'  
CLUB.

By DR. H. FLECKER (Cairns).

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Presidential Address delivered at Annual Meeting of  
North Queensland Naturalists' Club, Cairns, on Monday,  
12th October, 1936.

I would have preferred to have addressed the club on some more useful and informative topic, taking, for instance, as a subject, the naming of objects of natural history, vernacular and biological, but your committee is of the opinion that such a subject as has been chosen above might prove more acceptable.

That North Queensland is a particularly favourable locality for the natural history student is probably well understood, and has been so frequently stressed in numerous directions that I fear that any further emphasis on my part of this fact would lead to considerable boredom. There are, too, a limited number of people—evidently very limited, indeed, who take advantage of this fact, including some visitors from remote parts of the world, but it seems that the vast majority of the people, especially those resident in these parts, although taking this fact for granted, are quite indifferent, and if they visit the Reef at all, and many living all their lives in the North have not, would just as soon see the coral reef even at low tide from the deck of the steamer than wander over the Reef itself, and personally explore the magnificent range of material which can always be found at low tide. Such people are just as indifferent to the bush, whatever treasures it may contain, and these are quite content to remove every vestige of natural vegetation to make way for a garden, perhaps of crotons and acalyphas, precisely similar to that of almost every other householder and public body. The wonderful treasures then to most people are not at all appreciated.

The various tourist bodies, no less than the numerous public authorities, are surely to blame for much of this state of affairs. The general impression is a desire to remove the natural and to substitute the artificial, and the contempt for the bush flora is exceedingly widespread. Note the rarity of native vegetation in the public gardens and streets, and the general desire of local authorities to introduce trees already exceedingly well known in other parts. Look through the tourist literature and note the



frequent references to cocoanuts, frangipanni, weeping figs, etc., of other parts, and the absence of mention of our own peculiarly interesting flora. Bright exceptions are Lake Barrine, The Maze and Fairyland at Kuranda, and the Jungle at Malanda, where guides are available. Most tourists would prefer to visit sights which they cannot see elsewhere, but in other places, particularly at Atherton, the tendency is to wipe out the whole of the natural features and substitute therefor alien plants. The proposal, fortunately over-ridden by the Government, was made by the Cairns City Council, to devote portion of the very limited area of 30 acres of Green Island for accommodation purposes, including a tennis court, despite the fact that this is almost the only true coral island readily accessible to tourists. I will only just mention in passing the absurdity of referring to native trees as "oaks," "maple," and "walnut," when in reality the proper trees bearing these names do not grow in Australia, where one would expect that the natural pride of those concerned would lead to the bestowing of some decisive and distinctive names to such ornamental and distinctive timbers of North Queensland. Surely it is a reflection on the intelligence of those concerned to persist in such false, and certainly fraudulent, names.

It is practically impossible in the short time available to do justice to the subject of the treasures of these parts—briefly, it can be said that the Great Barrier Reef alone offers opportunities for the study of coral formation, and its unique animal and vegetable inhabitants superior, perhaps, to any other locality in the world, and it is exceedingly sad that no concerted action is made by any tourist agency to provide properly trained guides. One has but to observe the extraordinary interest taken by those in the company of a competent guide to appreciate the value of such a service, and given suitable weather and tide conditions, it is rare indeed that any visitor does not go away enthralled and with a permanent impression of the wonders of the Reef. Yet the Tourist Office still fails to warn visitors of the necessity of wearing suitable clothing, and that the reef cannot be properly seen except at appropriate tides.

Of the plants, the botanist has a better field, both with regard to variety and number of species, than any other part of the Commonwealth with every class of soil and climatic condition from the arid west to the wettest district in Australia. The number of new species being added as they become known is perhaps greater than that of the whole of the rest of Australia. The marsupials and other mammals still engage the attention of numerous



authorities in a group almost unknown outside Australia. The foreshores around Cairns attract that large group of migratory and sea birds in search of food as the tide ebbs, which, with the numerous other feathered creatures elsewhere, give abundant scope for observation by the ornithologist.

Reptiles and chelonians of considerable variety are to be found, including the large handsome pythons, and besides the coastal crocodile, the interesting *Crocodylus Johnstoni* is met with in inland streams. Only those who have seen the fish on the Great Barrier Reef can realise their exquisite beauty and coloration, not encountered to such an extent in other than coral seas. The mudskippers will abundantly repay investigation to those who care to do so. The insects include some particularly large forms as stick insects, the largest and also the heaviest moths known, beetles, etc. The butterflies are remarkable for their bright colours. The green tree ant, common along the coast and some distance inland is noteworthy for the curious nest which it builds. An outsize in the *Peripatus* has likewise been found.

The sea also has its ample share of invertebrates, especially the crustacea, of immense number and variety, unequalled in more temperate regions, whilst molluscs are numerous and likewise the archaic brachiopod, *Lingula* is readily found at Mission Bay, quite close to Cairns. The corals likewise are of great interest in studying the formation of the reef itself. The echinoderms and the lower invertebrates of the Reef provide enough material for a life study.

To the geologist numerous interesting studies are presented. Around Cairns the effect of recent volcanic activity can be noted, and inland are larger areas of limestone, and also highly mineralised country of considerable variety. The inland fossil deposits of the giants of a former age, dromedons, ichthyosaurs, etc., are available to all who care to seek them.

This club was established in 1932 at a meeting convened by the Mayor of Cairns, with a view to attracting the attention of visitors to the natural glories of North Queensland, and I think it can be truthfully stated that the club has done much in this direction. Meetings have been held regularly every month, without any recess, and many distinguished lecturers from other parts, as well as numerous local people, have addressed the members on all sorts of subjects dealing with natural history. A great deal of publicity has been brought about on the different topics. Many erroneous conceptions have been modified, mistaken identities corrected, and bogeys removed. The

Press can be relied on to report much more accurately on subjects of natural history than was formerly the case.

Perhaps the greatest advertisement is provided by our Annual Wild Nature Shows, which have been invariably well attended, and the Club has, as far as possible, limited the great majority of the exhibits to North Queensland material, for it has been felt that to admit material from elsewhere would greatly detract from our objective of showing up our own objects. Incidentally, this show has provided the major portion of the revenue of the Club. Here may be seen the brilliantly coloured butterflies and many other insects, orchids, palms, and other plants, aboriginal handiwork, and numerous other material, abundant enough to fill the largest halls which we have been able to secure, and of great variety.

Our monthly journal started from the inception of the Club, and has continued without intermission ever since. Though regarded by many as a luxury, it has published many original articles, again limited, where possible, to North Queensland material. A number of new plants, including new orchids, have been described, as well as new descriptions of life histories of insects, and writers of considerable repute have honoured this Club by contributions to its pages. A census of North Queensland plants, with their respective localities, flowering months, etc., is being prepared, and about half the dicotyledonous plants have already been dealt with, these being kept up-to-date with additions and alterations. The journal is not merely the means of contact with other similar bodies in different parts of the world, but serves as an excellent medium for the exchange of other journals, etc. Our activities are thus certainly already well known in numerous other centres within and without Australia. Besides, the journal serves as a permanent record for the news items described therein.

Our library is being slowly built up, and is proving particularly useful for the purpose of reference, especially in the entire absence of any other reference library in this city.

Owing to the absence of a herbarium and museum in this city, extra responsibilities in these directions are being undertaken by this Club in taking charge of the North Queensland Herbarium, which it is expected will ultimately become national property. In the two years since it started, already more than 1,200 different species, besides many duplicates, have been labelled, mounted and duly classified, and these include over 900 indigenous to North Queensland, amongst which are also mosses, lichens, algae, etc. These are being rapidly added to. Lack of

facilities, such as a suitable storeroom, has prevented any considerable collection of material for a museum, and the difficulties of keeping such free from vermin and decay from moisture, etc., are very great. However, efforts are being made with the assistance of the Member for the district, and already a suitable block of land has been made available to the Cairns City Council free of charge. for a museum, if this body will make application for a loan for this purpose. Meanwhile, our Club is being appealed to for all kinds of information concerning the identity, etc., of numerous plants and objects of natural history.

In the "Cairns Post" has appeared in each Friday's issue rather more than a column of "Current Nature Notes," in which various subjects of natural history of particular interest at the time are dealt with. Incidentally, this column is a source of revenue to the Club, besides being of considerable interest to the readers of the paper. Similarly, this Club has contributed in a small measure to the production of "Viewpoint," an illustrated quarterly newspaper published in Townsville, which features many interesting natural history studies of North Queensland.

There are numerous other directions in which the Club has interested itself. A number of new species of plants, insects, crabs and crayfish have been discovered by its members and described. One member is actively engaged in cinematography of the Reef which promises immense success; with the aid of this Club, another has achieved such success at numerous photographic exhibitions abroad that he has gained the very high distinction of F.R.S.A. Still another member is pioneering the art of colour photography as applied to natural history objects. The Club has contributed to exhibitions in the other States as far as Adelaide. The Cairns Annual Show has been induced to make a special sub-section for native flora in its horticultural section. The Cairns City Council, half-heartedly perhaps, has been induced to label some of the trees in its streets. The dynamiting of fish has been limited, and the spearing, etc., on Green Island has been lessened. Certain geographical names have been fixed as the result of representations from the Club. The *Rhododendron Lochae* has been placed on the list of protected plants, and the exodus of the Cuscus from Cape York Peninsula has been checked.

The above does not exhaust all the activities which the Club has done, but surely it can be claimed that it has achieved a fair deal in the four years of its existence, and it is anticipated that much more will be done in the future.

## TWO NEW DENDROBS FOR NORTH QUEENSLAND

By REV. H. M. R. RUPP (Raymond Terrace, N.S.W.)  
and C. T. WHITE (Government Botanist, Brisbane).

## DENDROBIUM FLECKERI sp. nov.

Caules breviter serpentes, pseudobulbi numerosi, gracillimi, striati, 25-40 cm. longi. Folia 2-3, late lanceolata, 7-10 cm. longa. Flores pauci, comparate magni. Sepala fulvoviridia, acuta, 2-2½ cm. longa: sepalum dorsale, late lanceolatum, lateralia latiora: calcar obtusum gibbosumque. Petala breviora, angusta. Labellum 12-15 mm. longum, prominente trilobatum: lobi laterales erecti, purpurcorubri, lobus intermedius latissimus cum marginibus tomentosis incurvis; lamina cum jugis tribus. Columna longa curvaque, anther parvissimus.

An epiphyte, with shortly creeping stems. Pseudobulbs numerous, very slender, furrowed, 25-40 cm. long. Leaves 2 or 3, terminal, broad-lanceolate, 7-10 cm. long, clearly veined. Flowers few, rather large. Sepals pale yellowish-green, acute, 2-2½ cm. long. Dorsal sepal broad-lanceolate, the laterals broader, forming at the base an obtuse fibrous spur. Petals a little shorter than sepals, and much narrower. Labellum 12-15 mm. long, prominently 3-lobed; lateral lobes erect, deeply stained or splashed with purplish-red, mid-lobe red-spotted and streaked, broader than long, but with incurved white-tomentose margins. Lamina more or less red-spotted, with three parallel longitudinal ridges ascending from the base forward, the middle one not quite as long as the others and yellow-tipped. Column rather long but much curved, sometimes red-spotted. Anther very small.

Mount Spurgeon, Cairns district, per Dr. H. Flecker, September, 1935; Messrs. C. T. White and T. Carr, September, 1936.

Dr. Flecker sent me a dried plant, with three flowers, collected by Mr. Carr. My first impression was that of an exceptionally large flowered *D. Adae* Bail., but the acute sepals raised doubts which were soon justified. I could not identify the specimen with any described species known to me, but I judged it best to wait and see whether living flowers might be available next season. Early in October, 1936, I received a plant with living flowers from Mr. C. T. White, who, in company with Mr. Carr, had found this orchid a week or two earlier on Mt. Spurgeon. It is certainly a new species, and a decided acquisition to our known orchid flora. The affinities are chiefly with *D. Adae*, which was growing in the same locality. There is scarcely any appreciable difference between the two



plants when not in bloom; but the flowers are very distinct, as may be seen from the following comparison made between two flowers:—

|                           |                              |
|---------------------------|------------------------------|
| <i>D. Adae.</i>           | green.                       |
| Flowers white.            | Dorsal sepal 22 mm. long,    |
| Dorsal sepal 14 mm. long, | acute.                       |
| obtuse.                   | Labellum 14 mm. long.        |
| Labellum 10 mm. long.     | Lateral lobes heavily stain- |
| Lateral lobes with faint  | ed with purplish red.        |
| purple bars.              | Mid-lobe reniform, with in-  |
| Mid-lobe cordate, densely | terned tomentose mar-        |
| tomentose.                | gins.                        |
| Column white.             | Column green, or densely     |
| Anther not small.         | spotted with red.            |
| <i>D. Fleckeri.</i>       | Anther relatively very       |
| Flowers pale yellowish-   | small.                       |

#### DENDROBIUM CARRIL, sp. nov.

Caules serpentes, teretes, eum radiceibus erassis. Pseudobulbi pauci, 3-4 cm. longi, striati. Folia duo, gracilia tenuiaque. Racemi foliis breviores cum floribus paucis. Sepala petalaeque angustissima, eireiter 14 mm. longa; calcar obtusum, 6-7 mm. Labellum fere 14 mm., aureum, supra canaliculatum, trilobatum; lobi laterales breves, lobus medius longus acutusque. Columna brevis lataque.

Stems elongate, creeping, terete, with rather thick roots radiating from beneath the pseudobulbs. Pseudobulbs few, 3-4 cm. long, deeply furrowed. Leaves terminal, two or one, slender and of thin texture. Racemes shorter than leaves, with several pale flowers. Sepals and petals very narrow, equal, about 14 mm. long; spur obtuse, half as long as the sepals. Labellum nearly as long as the other segments, bright golden yellow, channelled above, trilobate; lateral lobes short, median lobe long and rather acute. Column short and broad, but details obscure in the material available.

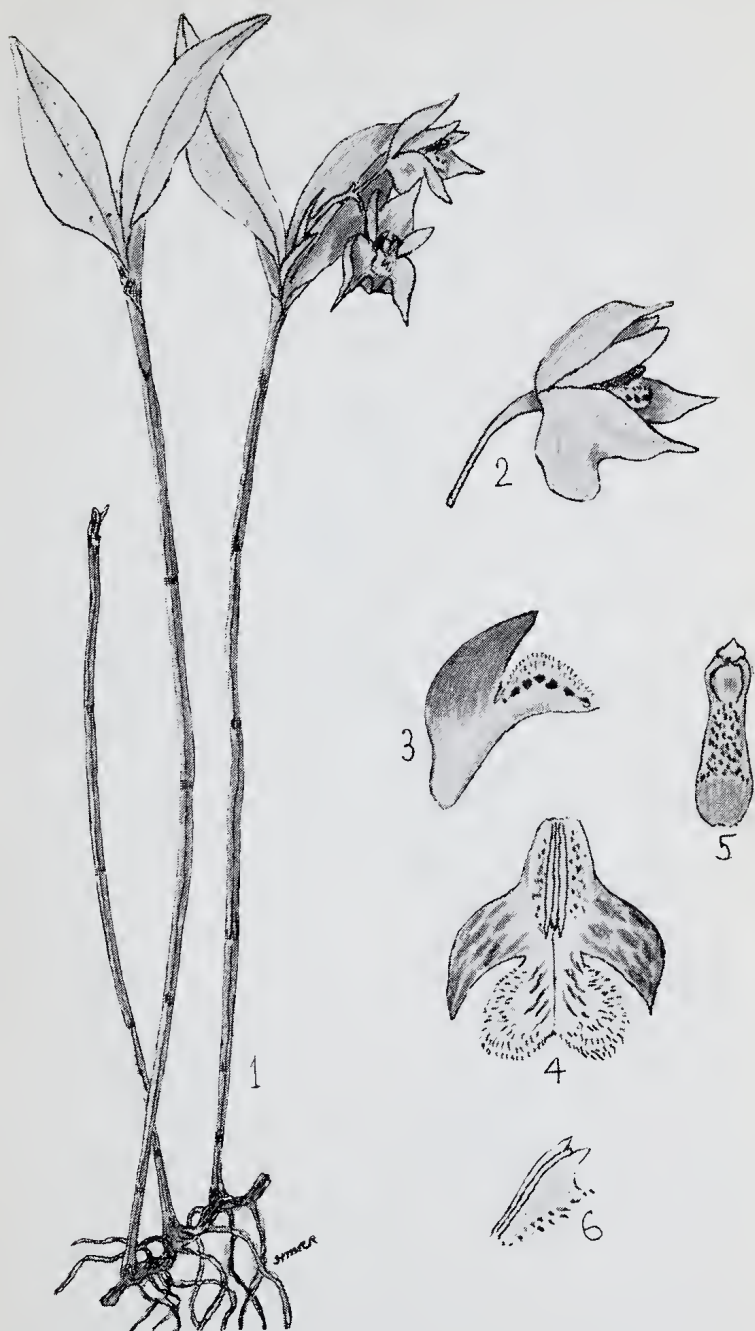
#### MOLLUSCAN NOTES.—No. 1.

By HERMANN J. BERNHARD (Rockhampton).

#### HUNTING THE ELUSIVE COWRIE IN KEPPEL BAY.

No doubt many people have picked up Cowrie shells both dead and alive, but how many have seen the beautiful animal that lives in them! When making observations on these molluscs, I take a large size specimen jar with me and half fill it with sea water. Cowries are shy animals,

PLATE I.



*DENDROBIUM FLECKERI*, Sp. Nov.

- |                                               |                                                  |
|-----------------------------------------------|--------------------------------------------------|
| 1. Portion of Plant, about half natural size. | 4. Labellum flattened out and viewed from front. |
| 2. Flower from side, natural size.            | 5. Column, front.                                |
| 3. Labellum, from side.                       | 6. Laminal ridges of Labellum.                   |

PLATE II.



DENDROBIUM CARIi, Sp.N.

(a) Portion of plant, three-quarters natural size.

(b) Flower enlarged.

but if put into a glass of sea water will come out of their shell in all their glory and try to get away to another hiding place; that is the time when I get a magnifying glass on them to study them, make sketches, colour notes, etc., on the spot. When once they have the water well slimed up and find they cannot escape, they retire into their shell and nothing on earth will coax them out of it again.

The coastal fauna here is distinct from the island fauna or the Reef fauna. Coastal shells are mostly larger than the Reef ones of the same species. At low tide Cowries are found hiding under large stones and coral lumps on the reefs, though in some cases you can find them clinging and moving over the surface of the rocks or coral lumps.

Following along the beach from Emu Park round Boyd Point to Shoalwater Bay, at low or nearly low tide, one can walk to the shoal of rocks off the beach. One Sunday I waded out into the fast ebbing tide and started the hunt.

I got some *Gratiadusta xanthodon* Sby., a dark blue shell, reddish base and brown spots on it. The mollusc has a transparent pale-green mantle, giving it with the darker shell below a light khaki hue; when dry it has red dots on the mantle which, when in water and viewed under the magnifying glass, are seen to be branched hairs or feelers of a bright brick-red colour, waving to and fro in the water. Along the edge of the mantle is a pale red stripe. Feelers or tentacles are red, siphon pinkish, mouth red, foot pale green and creeping disc a yellowish white (usual colour).

Another shell is "*Erronea*" (unnamed—Iredale). It has been reported under a dozen or more names. The shell is dark blue, with two or three broad paler stripes, white base. Some shells have a dark brown patch on the back. The mollusc is pure white, covered all over with black dots which give it a grey mottled appearance. The top of the foot is white, with fewer black dots on it raised more at the back than at the front. The feelers and mouth are red and the siphon white. *Paulonaria macula* Aug., which has a brick-red mantle, is also occasionally found.

At the Keppel Islands I have found and collected:—

*Lyncina vanelli* L. (late *lyn*).

*Ponda carneola* L. A jet black mouth.

*Mystaponda vitellus* L.

*Ravitrona caputserpentis* L.

*Erosaria erosa* L.



*Erosaria metavona* Iredale. (late *miliaris*). A rare shell.

*Staphylæa staphylæa* L.

*Purpurosa facifer* Iredale. (late *limacina*). Pale blue and red ends.

*Derstolida fluctuans* Iredale.

*Erronea asellus* L.

*Solvadusta* sp. (Qy. *vaticina* Iredale or *subviridis* Reeve.)

*Melicerona melvilli*. Hidalgo.

*Palangetosa cylindrica* Born.

*Erronea caurica-langion* Iredale.

*Erronea caurica-oblongata* Melv.

*Arabica westralis* (Type) Iredale.

Mostly at Emu Park I got a fair number of unnamed species for the Australian Museum:—

*Pellasinia*.—Some are near *bullata* or *semperi*, and two others are unnamed. These belong to the Amphijeratidae.

*Phenacovolva nectarea* Iredale.

*Margovula pyriformis* Sby.

*Diminovula cavanaghi* Iredale.

*Prionovolva brevis* Sby.

*Volva volva* L. (Weaver's Shuttle).

The study of the coloration of living molluses is only of recent date, and I cannot at present give more details than I have, as the opportunity to study the animals under suitable conditions does not always present itself when out collecting.

## BOTANICAL NOTES FROM ROSEDALE.

### AN EXCURSION TO MURCHIE'S SCRUB.

(OCTOBER, 1935.)

By L. G. DOVEY, Rosedale.

For a number of years I have been on the lookout for flowering or fruiting specimens of several species of trees and shrubs which, though fairly common with other rain forest trees on the creek sides, have up to the present failed to supply material for their precise determination. In the hope of finding representatives of these, I decided on Sunday, the 6th October, to make an excursion with two of the local boys to a rain forest known as Murchies' Scrub, situated on Walsh's Creek, some six miles from Rosedale in an easterly direction, and some two miles from Watalgan. It owes its name to the fact that an old pioneer named Murchie selected a small area on its north-eastern boundary in the late 'sixties or early 'seventies, and

planted an orchard of various fruits—oranges, mangoes, pineapples, etc.—which thrived remarkably well, and proved a source of income to the owner, who spent the rest of his life, some fifty odd years, on the home carved out of the jungle.

For the first three miles, the road runs alongside the railway line, and a few features of interest on this section may be recorded, for great alterations have taken place since closer settlement of this area followed on the completion of the railway to Rosedale some forty-three years ago. When I first rode along this road some forty years ago, I was impressed with the appearance of the narrow-leaf ironbark (*Eucalyptus crebra*) forest, containing many large and in some cases 100 feet high trees in spite of the fact that many had been utilised in building the railway. Beneath these, waving fields of luxuriant Kangaroo Grass (*Themeda australis*), among which were to be found numerous herbaceous legumes of several species, clothed hill and dale. A few of the ironbarks yet remain, the best specimens being seen on the road, yet these are not to be compared with those now gone for ever; their reduced numbers have enabled other Eucalypts to become dominant. In one instance the clearing of the ironbark forest favoured a succession of Gum top box (*Eucalyptu shemiphloia*). Generally, however, the second growth forest is Yellow Messmate (*Eucalyptus exserta*) or Scented Gum (*Eucalyptus citriodora*). None of these, however, favours the growth of grass and other ground species like the ironbark. The timber-getters and now the cattlemen, have in the past, and at the present time, have done and are doing much towards exterminating *Eucalyptus crebra*, partly because it is one of the best hardwoods, and partly because it grows on a better class of country than the other species of Eucalypts.

The smaller trees and shrubs which are associated with the ironbarks are as yet in evidence. Mimosa Wattle (*Acacia Bidwillii*) and White Hickory Wattle (*Acacia Cunninghamii*) being the most common. Although the Bat's Wing Coral Tree (*Erythrina vespertilio*) was plentiful, yet, on one or two limited areas it was at one time becoming rare owing to its being utilised for brakes for timber waggons until replaced by grass trees. The waving fields of Kangaroo Grass (*Themeda australis*) have completely disappeared—it is hard to find a healthy tuft of this valuable grass in any of the numerous paddocks adjoining the railway line. Some distance back in the rough hilly country and on the mountain it is yet common, a glaucous form being found on the higher parts. in the vicinity of 1,000 feet or more above sea level. On

the low ridges where the soil is derived from andesitic or amphibolitic rock detrital, its place is taken up by bitter blue grass, (*Bothriochloa decipiens*), a very poor substitute for the Kangaroo Grass, with small areas of Bunch Spear Grass (*Heteropogon contortus*), and another rather tall species, *Hyparrhenia filipendula*. On the acid soils of a rather sandy nature, Paddock Love Grass (*Eragrostis leptostachya*) in the open, and *Eriachne Armitii*, with several species of three awned spear grasses in the thickly timbered country. On the flats where a few Blue Gum trees (*Eucalyptus tereticornis*) are yet left standing, and the soil is of a calcareous nature, the native violet, *Viola hederacea* on the drier parts, and *Juncus* spp. on the lower and better moisture holding spots, is striving with *Paspalum* with some degree of success. On the more sandy flats where Red Bloodwood (*Eucalyptus corymbosa*) and Swamp Mahogany (*Tristania suaveolens*) are the forest dominants, Blady Grass (*Imperata cylindrica* var. *Koenigii*) with patches of Barb-wire Grass (*Cymbopogon refractus*), and a few tufts of *Sporobolus diander*, are the principal grasses. *Banksia integrifolia*, *Grevillea Banksii*, *Casuarina torulosa*, *Acacia aulacocarpa*, and *Acacia Maidenii* are also common on these flats. The most striking contrast, however, is the great differences between the ground flora of the roads and the adjoining paddock, and that found growing within the confines of the railway fences, which has proved a refuge for many species of herbs which could not withstand the altered conditions brought about by closer settlement. Within these fences, Kangaroo Grass (*Themeda australis*) grows in profusion, and *Capillipedium parviflorum*, and *Sorghum fulvum* are in some parts very common. Among the leguminous herbs, *Vigna vexillata* and *Vigna lateola*, *Glycine tomentosa*, *G. tabacina*, *Mimosa pudica*, *Indigofera hirsuta*, and several others are all very common here, but are seldom seen in the adjoining paddocks. Within these fences are also found representatives of species found in the north and west of the State, the seed having been introduced by stock trains.

We now leave the railway and enter on the second and last stage of our journey through the State forests, which present new features in several ways. The first part of our trip was through country which had been flooded by andesitic lava in late Tertiary times, and the soil and flora reflected in a way its influence. We now pass through country where conglomerate (apparently Cretaceous Eocene) contributes most of the soil bulk, hence we have a very different association of trees, etc., to that already passed through. Yellow Stringy Bark

(*Eucalyptus acmenioides*) and Yellow Bloodwood (*Eucalyptus trachyphloia*) are dominant. Where the soil is of an open sandy nature on low hills, Sugar Gum (*Angophora lanceolata*) is common. On the flats Swamp Mahogany (*Tristania suaveolens*) is found in numbers with tea tree (*Melaleuca leucadendron*) var. *viridiflora* fringing the water holes. Among the smaller trees, *Acacia falcata* (not common), *A. conferta*, *A. complanata*, and *Tristania conferta*, numerous dogwood (*Jacksonia scoparia*) in flower on the higher parts; on the lower ground *Melaleuca leucadendron* var. *minor* was very numerous, as was *Acacia Cunninghamii*. Grass Trees (*Xanthorrhoea minor*) were very numerous on some parts of the area traversed. On the creek banks, hundreds of *Melastoma malabathricum* are in full bloom; with these were associated a number of *Dianella revoluta*, also in flower. Later in the season many species of under shrubs and herbs are to be found in flower. The principal grass is *Themeda australis*, with *Eremochloa maculata*, *Aristida queenslandica*, *A. ramosa*, *Entolasia* spp. *Cymbogon refractus*, *Arundinella* sp., and *Imperata arundinacea*, the last two being very common on the flats.

On the ridges and rougher ranges the Stringy Bark forest is replaced by an association of Red Ironbark (*Eucalyptus siderophloia*); in most parts the run-off is rapid, the period of moisture deficiency longer, with less leaching of plant food, and in places the ancient (Palaeozoic) slates, porphyries, tuffs, and thick beds of volcanic ash have been exposed. All these have helped in the production of a ground flora, which differs in many ways from that recorded from the Stringybark, *Pultenaea ternata* and *Acacia amblygona*, from almost pure patches of up to an acre or more. *Oxylobium aciculiferum* is almost as numerous. A golden wattle, *Acacia fimbriata*, is found in the more open spots with plants of *Monotoca scoparia* and *Daviesia ulicina* to represent the more scattered species. *Acacia falcata* forms a wattle scrub in places 20 feet high, with brush box (*Tristania conferta*) as an associate as we approach the outskirts of the rain forest. We prefer to strike the rough country crossing over the Divide which separates the Baffle Creek catchment area from that of Mullet Creek, and which is an offshoot of the Watalgan Range, rising up to over 1,000 feet in altitude a mile south of where we descend to Walsh's Creek, our destination (that is, as far as we can ride) being where this creek enters the scrub on a rather picturesque flat, where one can watch the struggle for existence between



the jungle and forest. As I have known and visited this spot many times during the last thirty-five years, it may be of interest to record that on the right or eastern bank the jungle has advanced something like a hundred yards, whilst on the opposite bank it has remained stationary. One would certainly be justified in expecting the opposite, as where the scrub has advanced it is rough hilly country; on the other hand, the left bank is a deep alluvial sandy loam with bloodwood (*Eucalyptus corymbosa*) and *Glochidion Ferdinandi* (this latter is to some extent a fire resister, i.e., it shoots out from the roots after the stem has been killed by bush fires), and a dense growth of Blady grass (*Imperata arundinacea*), which is fired every year. These fires have evidently prevented the rain forest species from occupying this area. The grass of the hillside is principally *Chloris unispicea*, with *Aristida gracilipes*, which produce much less herbage, and thus a weaker fire. The Paper-bark tea trees are also giving way, as only large aged trees are seen, the juveniles of the rain forest species apparently receiving the greater position of nature's favours. Prominent among these is pink Kamala (*Mallotus philippinensis*) with Grey Birch or Scrub Ironbark (*Bridelia exaltata*), *Canthium* (*C. coprosmoides*), and *Diospyros australis*, the two last being drought resistant to some extent and very common on higher ground.

The rain forest is between three hundred and four hundred acres in extent, very irregular in outline, with the creek traversing it in an oblique direction. High ridges—in places far above the tops of the trees in the rain forest—penetrate the rain forest on the western side. These are covered with a fairly dense forest of Red Ironbark (*Eucalyptus siderophloia*), with a thick undergrowth of *Acacia falcata*. The creek which twines and turns, only equalled by the lianas which grow on its banks, travels over a mile in what would be less than a third of the distance in a direct line. Having reached its bare level, it wanders from side to side until some flood cuts a new channel, filling up the old bed with sand and debris to provide a nursery for some future generations of trees, shrubs, etc. At the beginning of this century, numerous water holes could be found, but most of them at the present time are filled with sand, so that very little water is available for the birds and mammals which make their homes here. It may be of interest to note here that during the severe drought of 1902 several water holes could be found where birds of many species congregated, yet now we find, in spite of several years of more than

the average rainfall (also that within the last three months thirteen inches of rain has fallen), the water has disappeared, and probably most of the birds, for during the two and a half hours spent wandering around in this scrub we saw no birds, and only noticed the cooing of a single bronze-wing pigeon, yet we were compensated for this in a way by disturbing a number of scrub turkeys from a half-built mound. This mound, contrary to their usual custom of building on the hills when the undergrowth is dense, was on a rather open flat in the midst of the scrub. For many years these birds were exceptionally rare, but during the last few years they are again common. The Wonga pigeon has, however, become scarce to what it was a few years ago.

A feature of interest is the numerous trees of all sizes of gum-topped Ironbark (*Eucalyptus decorticans*) found growing up to 100 feet high or more from the margin to well within the scrub. There is a marked contrast in the differences between this and the Red Ironbark, which keeps to the open forest ranges and to the unpractised eye appears as sound as the gum-top Ironbark, yet fully 95 per cent. of the Red Ironbarks, i.e., trees over a foot or so in diameter, have pipes, and probably in some parts of the hole, a white ant's nest. On the other hand, aged trees of the Gum-topped Ironbark are invariably sound, and are much sought by timber-getters. As a rule, the leaves of the Gum-topped Ironbark sapling or juvenile are smaller than those of the adult; on the other hand, the Red Ironbark has much larger leaves in the juvenile than in the adult tree. There is also a difference in the bark and wood, apart from the specific difference in the flowers and fruit.

The following list is the names of those trees and shrubs found growing in or on the outskirts of the rain forest:—

*Anonaceae*. *Fitzalania hetropetala*—a small shrub-like tree up to 8 feet high. Common.

*Capparidaceae*. *Capparis nobilis*—a large shrub or small tree, rather neat in appearance; not common.

*Capparis sarmentosa*—a straggling shrub; rare.

*Flacourtiaceae* *Scolopia Brownii*—fairly common where the creek enters the rain forest. Up to 10 feet high.

*Pittosporaceae*. *Pittosporum revolutum*—shrubby form; rather scattered.

*Rutaceae*. *Zieria Smithii*—a very common shrub on the edge of the rain forest. 4 feet high. *Acronychia laevis*—common on low parts near the creek. *Citrus australis* trees up to 30 feet high and 1 foot in diameter are found

on the creek banks. *Flindersia australis*; *F. Schottiana*, up to 40 feet high and 18 inches in diameter, are now and again met with on ridge sides. *F. Bennettiana*—rather smaller than the two last-named and not so common; found on the lower parts or hill sides.

*Celastraceae*. *Celastrus dispermus*, up to 35 feet high and 9 inches in diameter. Not common on flats.

*Sapindaceae*. *Cupaniopsis Wadsworthii*—widely spread, being common both on ridges and flats. Shrub, 6 feet. *Ellatostachys xylocarpa*—a small tree not common on flats.

*Anacardiaceae*. *Pleiogynium Solandri*—Several small trees on low ridge slopes up to 20 feet or so in height. Most of these have fruited last year as shown by the number of "putamens" found on the ground.

*Myrtaceae*. *Eucalyptus decorticans*—previously alluded to. *Tristania conferta*—only on hill near the outskirts. *Myrtus racemulosa*—rather common on the dry hills within the rain forest, its copper coloured, smooth trunk being rather conspicuous.

*Araliaceae*. *Mackinlaya macrosciadia*—a tree-like shrub, 5 feet high, common in sunny spots on sides of gullies in lower parts of the rain forest.

*Rubiaceae*. *Pavetta indica*—in some parts common near margin of scrub. *Ixora Beckleri*—small trees up to 15 feet high, not common on low flats. *Canthium coprosmoides*—small tree on the outskirts of scrub in dry places; very common. *Canthium lucidum*—in moist and more sheltered situations than the last named; common. *Psychotria loniceroides*—small shrub, common both inside the scrub and on flats in open forests. *Randia chartacea*—small tree or large shrub, very common on creek in well sheltered spots. Leaves of this vary considerably both in size and general form.

*Myrsinaceae*. *Rapanea variabilis*—common on hills on outskirts. *Ardisia pseudojambosa*—small tree 10 feet high. Not common.

*Ebenaceae*. *Maba fasciculosa*—near margin. *Diospyros australis*—very common and widely spread in drier parts.

*Apocynaceae*. *Alyxia ruscifolia*—very common near outskirts. *Tabernaemontana orientalis*—not common; 6 feet high.

*Boraginaceae*. *Ehretia acuminata*—fairly common, up to 30 feet or more in height.

*Verbenaceae*. *Vitex lignum vitae*—very common, trees up to 40 feet high, and 1½ feet in diameter. *Calli-carpa pedunculata*—shrub 3 feet high, common outside scrub on open flats on creek.

*Lauraceae*. *Litsea dealbata* and *L. reticulata*, both fairly common as small trees, as was *Cryptocarya triplinervis*.

*Monimiaceae*. *Kibara macrophylla*—common as a shrub-like tree on sides of gullies in rocky places.

*Euphorbiaceae*. *Mallotus philippinensis*—small tree up to 35 feet, forming communities of up to 50 individuals on flats near margin of scrub. *Bridelia exaltata*—same locality, but not as numerous: 10 feet high. *Alchornea ilicifolia*—scattered here and there on drier parts. *Cleistanthus Cunninghamii*—small tree with slender branches, common in several parts. *Homalanthus populifolius*—rather rare on creek outside rain forest. Some young growth of this had flower spikes a foot in length. *Glochidion Ferdinandi*—very common on creek outside rain forest, as also is *Breynia oblongifolia*, a shrub growing up to 4 feet in height.

*Ulmaceae*. *Aphananthe philippinensis*—some small trees of this were seen up to 15 feet high.

*Urticaceae*. *Laportea photiniphylla*—up to 30 feet high, and nearly a foot thick. Juveniles of this were very common on the edge of the rain forest in sheltered spots.

*Santalaceae*. *Exocarpus latifolia*—a few of this species now and again seen up to 10 feet.

*Podocarpaceae*. *Podocarpus elata*—a few very small trees of this found on the banks of gullies.

This list is far from being a complete census of the arborescent and shrubby species to be found in this jungle complex. The families *Sapotaceae* and *Moraceae* are well represented, but specimens suitable for a precise determination were not found. Woody climbers are also represented by a number of species, one, the Burning Vine (*Malaisia tortuosa*), being very common. A monocotyledonous climber, the Palm Lily (*Cordyline terminalis*) grows in profusion. Wild Ginger (*Alpinia caerulea*) has become rare. The only Orchid seen was *Dendrobium tetragonum*, which was fairly common, and *D. teretifolium*, which was also very common some years ago, appears to have been exterminated, as I have been unable to find plants of this for some time now.

Ferns were represented by large and very small Elk horns (*Platynerium alaicorne*), the medium sized plants which were in considerable numbers just before last Christmas having disappeared apparently by human agency. A *Blechnum* in some places covered the ground usually on hills where numerous juveniles of various rain forest species of trees intermixed with *Smilax australis*, and an odd Wax flower vine, *Hoya australis*, which is



rarely found far within the rain forest. *Doodia aspera* was also common. It was too early yet, however, to find this class of plants numerous.

With regard to the other branches of natural history, the younger of my companions (they were two brothers—sons of a timber-getter), a lad aged about 15 years, was keen on collecting beetles and naturally was on the look-out for these subjects. Unfortunately, the foliage species were very rare, and we had forgotten to bring an implement for digging them out of dry logs, and so our collection was rather meagre, comprising several species of *Tenebrionids* and one large *Passilid*, black, and about  $1\frac{3}{4}$  inches in length, determined by Mr. H. Haacker as *Mastochilus australasicus*—Perch. They were in considerable numbers in a decayed log. On examining the dead tree we found that many wood borers had been at work.

These two boys proved very helpful in finding many of the specimens I was in search of, numerous fruit or remains of fruit, of which I have many yet to examine, I certainly would not have found without their help. I was very gratified at the way they showed their keen interest in natural history by the intelligent questions asked regarding various phenomena and their anxiety to know when we would make another excursion to this spot. Yet these lads knew nothing about natural science, but were anxious to learn something of the habits and the mutual relation that exists between organic beings, and if ever I wished for a conversational system of vernacular names it was that day, for I knew from experience that if given the scientific name it would very likely destroy their interests in the organism or subject under discussion.

Before many more years there will be very little rain forest left standing within a considerable distance of Rosedale, and it is most gratifying to know that this interesting spot that we have visited and hope to visit many times yet, is part of the State forest which covers many square miles in the neighbourhood of Watalgan, and is within easy reach of that small township. It possesses little, if any, attraction for tourists—there are no palms, tree-ferns, or waterfalls, yet to the naturalist it holds many features of interest from an ecological viewpoint. It is built up on a floor of acid volcanic tuff and ashes—a xerophytic form of the monsoon type of Malayan Flora dependent on the deflections of the south-east trade wind by the 1000ft. high double sloping humocks during a period of drought.

In concluding this account, I desire to express my sincere thanks to Mr. C. T. White and Mr. W. D. Francis, who have rendered me valuable help in identifying for me many of the plants named in this paper.

## RANDOM BIRD NOTES.

By MRS. W. M. MAYO.

### MANGROVE CANARY (*GREYGONE CANTATOR*).

During a stay at Brunswick Heads (N.S.W.) in the last week of August, 1936, I found many mangrove canaries among the mangroves at the river mouth.

The birds were in fine song, and the school children of Brunswick Heads called them, "Jacky Mangrove," and described the nest as "a little round cup with a long tail."

The range of the Cantator is given as South-eastern Queensland in all ornithological books, so it is of interest to know that the bird's range extends well into New South Wales.

Another bird whose range extends beyond the limit fixed by ornithologists is the White-eared Fly-catcher (*Carterosnis leucotis*). I found the bird in the coastal scrub at Burleigh last year.

The Sacred Kingfisher (*Halcyon sanctus*) does not seem to have migrated further north during the last winter, for in all my field excursions in those months I saw many of the birds in Queensland and northern New South Wales.

A visit to Sandgate lagoons in September proved disappointing. A dry spell such as we have lately experienced, usually means that the wild fowl flock to the lagoons at Sandgate, but the observer found little of interest there in September. The scarcity of numbers of the different species came as a shock to the habitual observer.

A few Black Duck, one Whistling Tree Duck, a couple of pair of Teal, the same of White-eyed Duck, a half dozen Lotus birds, one Black-fronted Dotterel, a small number of Black-throated Grebes, Eastern Swamp-hens, Coots, and a Moor-Ilen or two, with a pair of little Black Cormorants, and another few of the small Pied Cormorants (the fresh water species) were the sum total of the birds seen. The only unusual bird was the Spotted Crane (*Porzana flaminea*), one specimen of which proved not at all shy, for a wonder, but picked about well away from the reed bed, and allowed us a very good look at a beautiful bird,

## BIRD NOTES.

By G. H. BARKER.

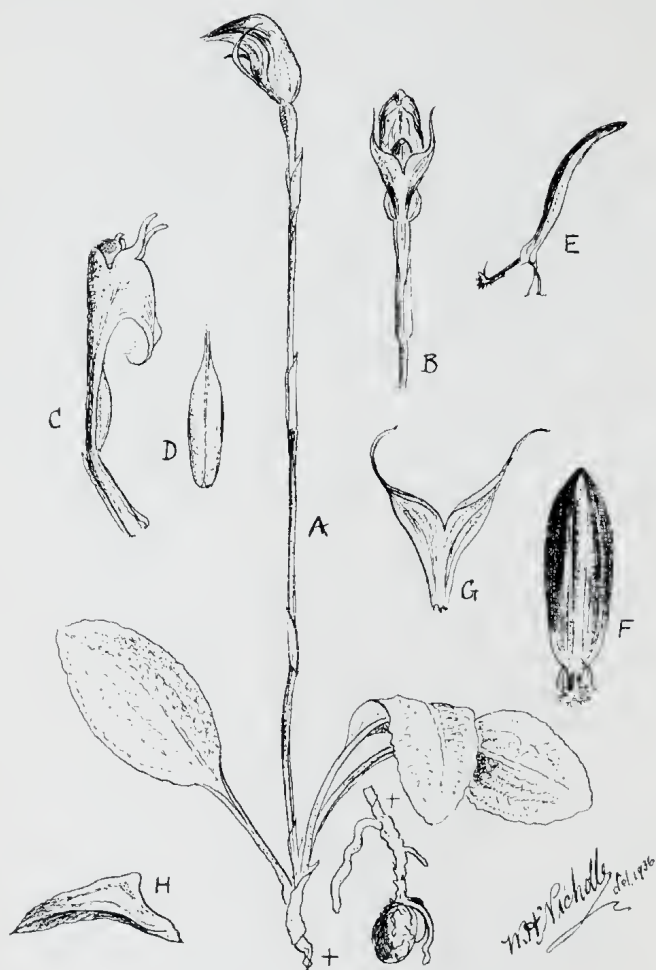
QUEENSLAND NATURALISTS' CLUB OUTING,  
ASHGROVE, NEAR THE ONE-TREE HILL SUMMIT,  
18th JULY, 1936.

A bright, sunny afternoon, almost a dead calm—occasional slight drift from the west. Birds were scarce and mostly silent. The one most in evidence was the yellow-cheeked Honeyeater (*Meliphaga chrysops*), which was heard in the flowering eucalypts all the afternoon. This bird has been very plentiful around Brisbane for weeks past, more so than usual, though every year it moves up from the South. My observations led me to believe that if the winter is a mild one in Southern Queensland, it stays with us, but if we have early frosts, it must go further North. Possibly also the seasons for flowering eucalypts vary. Just now many are blooming, but I have no records of this fact occurring regularly or not, and we must ask the question of our botanists. Another bird that was frequently heard during the ramble, and like most of those seen and heard, was a lodger in the tall tree-tops, was one I am not even sure of, though I could guess it in two. Either it was the Scarlet Honeyeater or the Mistletoe Swallow. Not once was I able to get a glimpse of the bird, nor did either of them utter the distinctive note that would have catalogued it at once, but there is a note that is common to both, and this was the only one I heard at any time. I am obliged, therefore, to let the matter rest at that. Little that was outstanding was noted by me, though I heard the note of the Pallid Cuckoo two or three times late in the evening, but was unable to see the bird. If I was not so sure of this bird's call note, I could hardly have believed it, as usually it does not come from the North till the Spring. As this is one of the many storm-birds our bush lawyers will now be prophesying the end of the Winter. Perhaps the most interesting note of the afternoon was that of the Crested Tit (*Falcunoulus frontatus*). It is only on heavily timbered ranges such as we find about the Summit that we ever find this bird, and even then it is scarce and shy. We had a regular hunt for it after hearing its note, and if I had not had the service of two Scouts to track it down, hardly had we placed it when away it went to the next ridge. Of the rank and file to go down on our list were Kookaburras, Scaly-breast Parrakeets, Noisy Miners, Wagtails, Grey Thrush, Silver-Eyes, Magpies, Butcher Birds, Graculus, Swallows, Grey Fantail, Leatherheads, Rufous Whistler Wren, Pee-wee.





PLATE III.



*PTEROSTYLIS HILDAE*, Sp. NOV.

- |                        |                                 |
|------------------------|---------------------------------|
| (a) Typical specimen.  | (e) Labellum from side.         |
| (b) Flower from front. | (f) Labellum from above.        |
| (c) Column from side.  | (g) Conjoined sepals from rear. |
| (d) Stigma.            | (h) Petal.                      |

Mention should be made of the very interesting collection of birds and animals at the Kiosk at Mt. Coot-tha, most of which can be inspected at close quarters by visitors, who are admitted to most of the cages. One wonders, however, how these birds and animals will fare during the hot summer months, shut up in an enclosure constructed with the idea of keeping outsiders from viewing the contents rather than the convenience or health of the inmates. The Club should keep an eye on this possible defect.

### A NEW SPECIES OF THE GENUS PTEROSTYLIS, R.Br.

By W. H. NICHOLLS.

#### *PTEROSTYLIS HILDAE*, sp. Nov.

*Planta glabra, gracillima, circa 10-15 cm., alta, Folia ad basem, 2-3 ovata vel oblonga, longinuscule petiolata; caulina bracteata parva, 2-4.*

*Flos solitarius, viridis, parvus; galea erecta, incurva, sub-acuta; labium inferius, erectum, cuneatum, apice subulatum; labellum elliptico-oblongum, irritabile mobile-unguiculatum, fere strictum, apice obtusum; lamina circa 9-11 mm. longa, in medio linea, elevata, longitudinaliter; basi appendix linearis, penicillata.*

*Columna erecta, circiter 12-15 mm. longa, lobo superiore subulato; lobo inferiore anguste oblusta; marginibus introrsis ciliatis; stigma angustum, prominens.*

A slender glabrous species about 10-15 cm. high, leaves basal, 2-3 (in my specimens); rather large, ovate or oblong, on long petioles; stem-bracts small, 2-4.

Flower solitary, small, almost wholly green, apex of galea tinged with light brown, galea about 1.7 cm. to 2 cm. long, erect, incurved, sub-acute; conjoined sepals erect, sinus acute, the finely subulate points embracing the galea, but not exceeding it; labellum oblong-elliptical, comparatively large, almost straight; irritable on a short, movable claw; the apex shortly obtuse, and protruding through the sinus of the lower lip; lamina about 9-11 mm. long, traversed by a central raised longitudinal line, with a linear penicillate appendage at the base.

Column about 12-14 mm. long, the upper angles produced into long, erect subulate processes, the lower angles somewhat narrow, obtuse, inner margins ciliate; stigma narrow, prominent; anther prominent with a very short point.

This small, but shapely-flowered species appears to be well-distributed throughout the forest areas of Northern New South Wales and Southern Queensland.

It bears a superficial likeness to *Pt. foliata*, Hk.f., but differs chiefly in the absence of leaf-like stem-bracts; in the less erect galea and in the short points to the conjoined sepals.

Its closest affinity is *Pt. curta*, R.Br., but in this case we have (in *Pt. curta*) a much larger flower, and a strangely-twisted labellum, etc.

I have named this plant after Mrs. H. G. Curtis (nee Hilda Geissmann), of Tambourine North, South Queensland, the original re-discoverer of the plant, and one who has done, and is still doing, much for nature study in Queensland.

The new species appears to be identical with the form figured by FitzGerald in his work <sup>(1)</sup>, and there referred to as a hybrid, *curta* × *pedunculata*, but there is little doubt it is a very good species—long established, and quite easily distinguished from all other described forms. It grows in small colonies in the rich black humus soil, associated with "rain forests," favouring shady places on the edge of thick scrub, hence easily overlooked. Flowering: August to early October.

#### DISTRIBUTION.

The following habitats in Queensland have been courteously supplied by Dr. Ledward:—

*Queensland*.—Tambourine Mountain (scrub-covered plateau, 1,800 ft. alt.), Mrs. Curtis, Dr. Ledward. Prior to 1936, Gunanaba Creek (on edge of rain forest, 500 ft. alt.). Dr. Ledward (1936). Springbrook Mountain (on border, scrub-covered plateau, 2,000-3,000 ft. alt.), growing in sheltered spots. Dr. Ledward (1936).

*New South Wales*.—Brunswick (scrub-covered places adjacent mangroves), Mr. F. Fordham, Miss Thistle Harris, W. H. Nicholls (Aug., 1936).

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(1) Australian Orchids. Vol. 1.

# THE QUEENSLAND NATURALIST

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB  
AND NATURE-LOVERS' LEAGUE

VOL X

AUGUST 1937

No. 3

## PROCEEDINGS.

EVENING MEETING, NOVEMBER 16th, 1936.—The chair was occupied by the President (Mr. J. E. Young). Thirty-five members were present. Miss Walsh was elected a member of the club. Mr. H. J. Freeman gave a most interesting address on his experience in New Zealand, Hawaii, and the United States. He had recently visited these countries studying various phases of the fruit industry. Miss Williamson exhibited specimens of *Oenothera longiflora*, a species of Evening Primrose that was quite common in some parts of south-eastern Queensland.

ANNUAL MEETING, FEBRUARY 15th, 1937.—The chair was occupied by the President (Mr. J. E. Young). Fifty-three members were present. Miss E. A. Grant and Miss I. J. McCallum were elected members of the club. Reports on the recent excursion to Enoggera by Mrs. W. M. Mayo (Birds), Dr. W. H. Bryan (Geology), and Mr. C. T. White (Plants), were read. Annual reports were read by the Hon. Secretary and Hon. Librarian. The financial statement as read by the Hon. Treasurer (Mr. F. Kunze), showed a credit balance of £94/10/11. Officers for 1937 were elected as set forth on the front page of the current issue. The retiring President (Mr. J. E. Young) gave a most interesting and informative address on the fauna of the Lamington National Park.

EVENING MEETING, MARCH 15th, 1936.—The chair was occupied by the President (Dr. W. H. Bryan), and about 30 members were present. Miss D. A. Goy and Mr. W. R. Petrie were elected members of the club. A letter from Mr. J. O'Neil Brennan was read, drawing attention to the destruction of birds by foxes in the Mt. Cootha Reserve. The principal business of the evening was an account of the vegetation of New Zealand by Dr. D. A. Herbert. Dr. Herbert had recently acted as the club's representative at the meeting of the Australian and New Zealand Association for the Advancement of Science held in Auckland of January of this year.



SPECIAL MEETING, THURSDAY, APRIL 1st, 1936.—The chair was occupied by the President (Dr. W. H. Bryan), and about thirty members were present. Mr. G. H. Tait, M.A., of the American Museum of Natural History, New York, gave a most interesting account of the work of the Archbold expedition on the Middle-Fly region of Papua. Mr. L. J. Brass showed a series of beautiful photographs of the region. Mr. W. R. Petrie exhibited a specimen of the fruit of the *Omphalca queenslandiae* grown on his property at Petrie. The vine was known in North Queensland as "Blackfellow's Magie," and the fruits regarded by both natives and whites as delicious eating.

EVENING MEETING, APRIL 19th, 1936.—The chair was occupied by the President (Dr. W. H. Bryan), and thirty-five members were present. Miss Heales and Dr. A. H. Richards were elected members of the club. Reports on the excursion to Canungra were given by Dr. E. O. Marks (Geology), Dr. D. A. Herbert, and Mr. S. T. Blake (Botany), Mr. F. A. Perkins (Entomology), and Mr. J. E. Young (General Zoology). Reports on the excursion to Gold Creek were given by Dr. W. H. Bryan (Geology), Mr. S. T. Blake (Botany), and Mrs. W. M. Mayo, and Mr. N. Jack (Ornithology).

EVENING MEETING, MAY 17th, 1936.—The chair was occupied by the President (Dr. W. H. Bryan), and about forty members were present. Mr. A. E. Reuter was elected a member of the club. Short talks on the geology and botany of the recent excursion to Mt. Mee were given by Dr. E. O. Marks and Mr. S. T. Blake, respectively. The principal business of the evening was the delivering of a number of lecturettes on the study of Queensland natural history, Fungi, by Dr. D. A. Herbert; Queensland Ferns, Miss D. A. Goy; Sedges and Grasses, Mr. S. T. Blake; and Minerals, Dr. W. H. Bryan.

EVENING MEETING, JUNE 21st, 1936.—The chair was occupied by the President (Dr. W. H. Bryan), and 33 members were present. Mr. A. Phillips was elected a member of the club. The principal business of the evening was a lecture on the Birds of Tasmania by Mr. G. H. Barker, based on observations made by him on a recent visit there. Dr. W. H. Bryan gave a few notes on the geology of Cape Moreton, and Mr. S. T. Blake spoke on some of the botanical features of the area, and exhibited specimens of some unusual grasses and sedges. Exhibits included sandstone from Cape Moreton, and pumice and ash from Rabaul by Dr. E. O. Marks. Photographs showing vegetation types at Cape Moreton and Mt. Mee were shown by Mr. S. T. Blake, and yam-like growth from Deception Bay by Mr. F. Kunze.

## ANNUAL REPORT.

The Council of the Queensland Naturalist's Club submits the 31st Annual Report of the work of the club.

*Meetings.*—Ten monthly meetings, a Wild Flower Show, eight Field Excursions, and ten Council Meetings were held.

The attendance at monthly meetings was good; the average being 46. Interesting lectures and papers on many branches of Natural History were given by members and visitors. The lectures were as follows:—

Mr. H. A. Longman, Director of the Queensland Museum, "Prehistoric Monsters."

Professor F. E. Lloyd, lately of the McGill University, Canada, "Carnivorous Plants."

Mr. T. Gedda, "Sweden."

Mr. S. L. Everist, "Botanising in Western Queensland."

Mr. J. F. Bailey, one time Director, Botanic Gardens, Brisbane and Adelaide, "Palms."

The late Mr. T. A. Hough, "New Guinea."

Mr. G. H. M. Drury, M.B.E., "Bechuanaland."

Mr. H. J. Freeman, "Experiences in Hawaii and the United States."

Patrol Officer Hough, whose extremely interesting lecture, illustrated by Kodascope films and still pictures, was much enjoyed by club members, was fatally wounded by natives shortly after his return to duty, and died in hospital on December 9th.

The standard of exhibits has been well maintained, and thanks are due to those members who contributed exhibits and reports on excursions during the year.

The Wild Flower Show was held in the Albert Hall, Saturday, September 12th. The exhibits were quite as beautiful and varied as usual, but as the attendance of the public was not very good a small deficit resulted. It has been decided in consequence, that the show be allowed to lapse for a year.

*Excursions.*—Attendance to excursions on the whole has not been very good, and the Council is faced with the difficulty of finding satisfactory places to visit on Saturday afternoons. Afternoon excursions may have to be curtailed in favour of week-end or whole days owing to the extension of the city, many places previously available have now been built on or taken up in suburban farms. The places visited were:—Cash's Crossing, Mount Gravatt, Acclimatisation Society's Gardens, Lawnton, One Tree Hill, Ashgrove, Bribie Island, Sandgate, and Upper Albert River.

The Easter Excursion to the Upper Albert River was one of the most successful we have held, and was attended by over 60 members.

Attendance at Council meetings has been as follows: Mr. Young, 10; Mr. Barker, 9; Dr. Herbert, 6; Dr. Bryan, 5; Miss Baird, 16; Mr. Kunze, 9; Mrs. Jackson, 7; Dr. Marks, 7; Mr. Jackson, 7; Mr. Rowley, 4; Mr. Jack, 8; Mr. Sanderson, 6; Mr. White, 6.

*Membership.*—It is with great regret that the death of an old and valued member, Mr. P. Sylow, is recorded. He served the club for some years as Honorary Treasurer, and will be much missed at meetings and outings.

The membership now stands at 126; of whom 7 are honorary members, 97 town, and 22 country members. Resignations have been accepted from four members, and eight have been elected.

*"The Naturalist."*—Two issues of the journal have been published during the year.

*General.*—It was noted with pleasure that a request to remove timber from a National Park had been refused by the Secretary for Public Lands (the Hon. P. Pease), the Minister administering the National Parks Act.

*Library.*—The Honorary Librarian (Mrs. G. L. Jackson) reports that the library still continues to be well patronised by members.

About 62 books and 132 magazines have been lent during the year to members attending the Monthly Meetings. By this it can be seen that the Magazine section is the most popular, and the addition of the English Geographical and Walkabout Magazines has been much appreciated.

Thanks are extended to Mr. J. Nebe and Mr. G. H. Barker for their generous donations of magazines. In addition to these, Mr. Barker has also presented three very fine works, viz., "Red Centre," by H. H. Finlayson, "Birds of Cape York Peninsula," by Donald F. Thomson, and "Wonders of the Great Barrier Reef," by F. C. Roughley.

As in the past, any future donations of books dealing with subjects of interest to the Club, will be gratefully received.

The Secretary reports that the requests for pamphlets and magazines from country members have decreased, so that fewer parcels are being despatched.

*Finance.*—The financial statement as read by the Hon. Treasurer (Mr. F. V. Kunze), showed a credit balance of £94/7/11.

J. E. YOUNG, President.

(Miss) E. E. BAIRD, Honorary Secretary.

AUSTRALIAN FERNS OF THE GENUS  
CYCLOPHORUS.

By D. A. Goy (Botanic Museum and Herbarium, Brisbane)

In Bentham and Mueller's "Flora Australiensis" and Bailey's "Queensland Flora," this comparatively small but very interesting group of ferns was placed under the large and polymorphic genus *Polypodium*. It is one of the genera separated from *Polypodium*, and regarded as distinct by practically all modern workers. In F. M. Bailey's "Handbook of the Ferns of Queensland," 1874, the first work on Queensland ferns, the generic name *Niphobolus* was employed, and in the two comprehensive works quoted above this name is used as a subgenus under *Polypodium*. The name *Cyclophorus* has a priority of thirteen years, the genus having been described by Desvauz in 1811, and *Niphobolus* by Kaulfuss in 1824. A distinguishing feature is the presence of numerous stellately-branched scales or hairs on the surface of the fronds. The species are characterised by having the rhizomes clothed with scales of various types, and the structure and mode of attachment of these scales constitute rather an important factor in specific determination.

## DESCRIPTION OF THE GENUS.

Rhizome creeping, clothed with brown scales. Stipes articulate to the rhizome near the base, the short persistent portion densely covered with shorter and broader scales than those of the rhizome. Fronds coriaceous, simple or rarely irregularly lobed in Australian specimens; surfaces more or less densely covered with stellately-branched, scale-like hairs attached by a central point, which tend to disappear from the upper surface of older fronds; veins anastomosing but concealed in the thick texture. Sori exindusiate, round or oblong, oblique or parallel to the midrib, mostly confined to the upper portion of the frond.

## KEY TO SPECIES.

A. Sori round or oblong, rather small (under 2 mm. long), irregularly crowded between the margin and midrib and often contiguous.

B. Fronds usually 5 cm. or less long, obovate or linear-oblong, densely covered on the under surface with stellate hairs. Sori rather small, confluent and indistinct when old

..... 1. *rupestris* C. Chr.



BB. Fronds 15-60 cm. long, narrow linear-lanceolate, scales minute. Sori very small, densely crowded, but distinct 4. *acrostichoides* Presl.

AA. Sori large (always over 2 mm. long), oval or oblong, often contiguous, confined to the margin with sometimes a few scattered on the blade.

C. Sori in 1 row on each side of the costa and parallel to it; usually at length confluent and indistinct.

D. Fronds linear to linear-lanceolate, entire, 3-20 cm.

long ..... 2. *confluens* C. Chr.

DD. Fronds irregularly

lobed, usually larger ..... *confluens* Chr. var. *lobatus* (Bail.) Domin

CC. Sori very large (up to 0.5 cm. long), often oblique to the midrib, irregularly scattered between it and the margin or sometimes in 1 row on each side of the midrib, often contiguous but usually distinct. Fronds obovate, 2-8 cm. long, very thick ..... 3. *intermedius*,

D. A. Goy

#### DESCRIPTION OF SPECIES.

1. *C. rupestris* (R. Br.) C. Chr. Ind. 200.1905.

*Cyclophorus serpens* Forst. var. *rupestris* Domin, Bibliotheca Botanica XX, p. 187, 1915.

*Polypodium serpens* auct. Austr. non Forst. Benth. Fl. Austr. VII., 767 (1878), Queensl. Fl. VI. 1984 (1902).

Rhizome slender, long-creeping, densely covered with spreading long, narrow, acuminate, pale brown fugacious scales. Fronds small but growing in large matted patches, coriaceous, obtuse, contracted into a rather long stipes, densely covered on the lower surface and more loosely on the upper one with stellate hairs, the barren ones obovate or oblong, 1-3 cm. long, the fertile ones linear or oblong-linear, 2-6 cm. long. Venation reticulate but concealed in the thick texture, and the dry frond even rugose with indented lines not connected with the veins. Sori not very large (usually under 2 mm. long), irregularly crowded over almost the whole frond, somewhat immersed, usually confluent and indistinct when old.



*Cyclophorus rupestris* C. Chr.

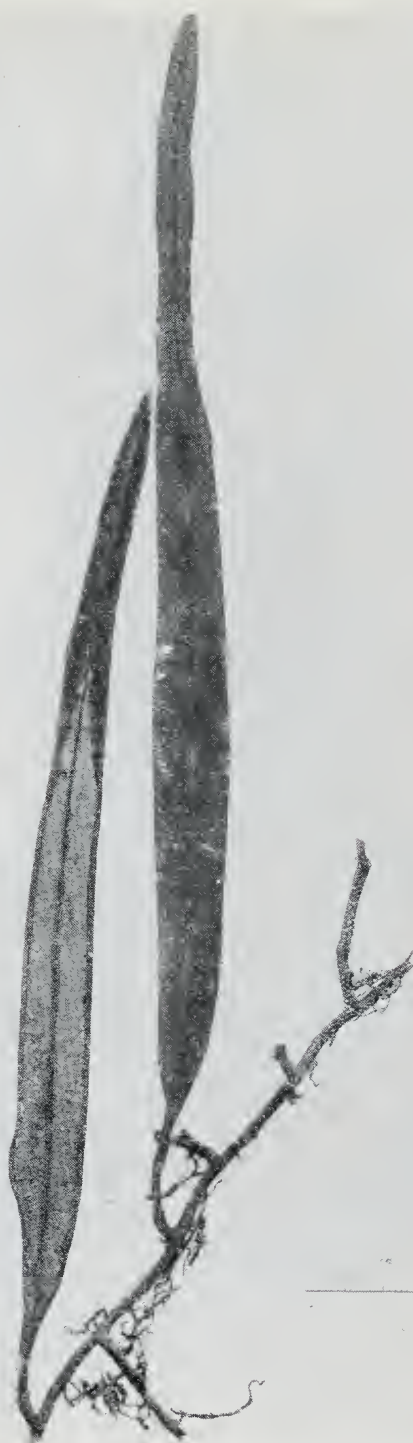


*Cyclophorus confluens* C. Chr.



*Cyclophorus intermedius*. D. A. Goy.





*Cyclophorus acrostichoides* Presl.

*Distribution*.—Eastern Australia (Queensland, New South Wales and Victoria).

Domin in *Bibliotheca Botanica* XX. p. 187, 1915, states that the typical *C. serpens* does not occur on the mainland of Australia, but is confined to New Zealand, New Caledonia and Norfolk Island. He places the Australian plant under *C. serpens*, Forst. var. *rupestris* (R. Br.) Domin. Christensen in his Index, p. 200 has, and I think rightly so, elevated our plant to specific rank. *Cyclophorus rupestris* C. Chr. has a fairly wide distribution in Queensland, being recorded from Moreton Bay, Mt. Perry, Rockhampton, Rockingham Bay, Bellenden-Ker, etc., and its southernmost limit in Australia, as far as is known, is in the vicinity of the mouth of the Snowy River in Victoria.

2. *C. confluens* C. Christensen Ind. Fil. 198 (1905).

*Polypodium confluens* R. Br. Benth. Fl. Austr. VII. 767 (1878), Queensl. Fl. VI. 1984 (1902).

*Cyclophorus spicatus* Domin *Bibliotheca Botanica* XX. p. 189, (1915).

Rhizome slender or rather robust, long-creeping, branched, densely covered with adpressed scales, the scales peltate, dark brown, lanceolate, acuminate, fimbriate with soft white hairs when young. Fronds linear-lanceolate or linear, or the sterile ones oblong to obovate, apex obtuse, tapering into a stipes  $\frac{1}{2}$ -2 cm. long, the fertile fronds longest, usually  $7\frac{1}{2}$  to 10 cm. but sometimes up to 23 cm. long,  $1\frac{1}{2}$  cm. broad, coriaceous, pale green above and sparsely covered with dark-coloured, fugacious, stellate hairs, the hairs very dense on the lower surface. Veins reticulate but concealed in the thick texture. Sori large, oval or oblong, in one row on each side of the costa, usually contiguous or densely confluent and indistinct when old.

*Distribution*.—Queensland, New South Wales, Lord Howe Island, Norfolk Island, New Caledonia, New Zealand, and New Guinea.

In Queensland this species has a distribution very similar to that of the preceding species. In New South Wales it extends as far south as Newcastle.

Var. *lobatus* (Bail.) Domin.

*Polypodium confluens* R. Br. var. *lobatum* F. M. Bail. Queensl. Fl. VI. 1984 (1902).

Fronds deeply and variously lobed and larger than in the normal form.

*Distribution*.—Queensland: Main Range, Helidon: Pearson's Waterfalls, Helidon.

*Polypodium confluens* R. Br. forma *liberatum* Bail. Comprehens. Cat. Queensl. Pl. 849 (1914).

The single specimen in the Queensland Herbarium is characterised by being soriferous over a much greater portion of the frond than in the normal form (nearly half), and the sori are well separated with the exception of those at the apex, which are fused into a short continuous ridge on each side of the costa. I consider it only to represent an occasional variation and scarcely worthy of a distinctive name.

With regard to Domin's *C. spicatus* (Bibliotheca Botanica XX, p. 189, 1915), after a careful examination of the material in the Queensland Herbarium, it is considered that this represents a form of *C. confluens* C. Chr. Extreme forms of *C. confluens*, with its large oval, somewhat confluent sori covering a large part of the frond, and of Domin's *C. spicatus*, with its compact confluent sori confined to the apex of the frond, as well as numerous intermediate forms, are frequently to be found on one and the same plant.

3. *C. intermedius* sp. nov.

*Polypodium serpens* Forst. var. *grande* F. M. Bail. Queensl. Agric. Journ. XXXI., 115, Pl. 101 (1913).

Rhizoma longe repens, ramosum, 2.5 mm. crassum, paleis adpressis primo fimbriatis demum nigrescentibus margine hyalinis dense vestitum, radices numerosas emittens. Frondes steriles fertilesque similes, obovatae ad lineari-oblongae, apice retusae vel rotundatae saepe emarginatae, basi cuneatae in stipitem 1.5-2 cm. longum angustatae, crasse coriaceae, cum stipite 2-8 cm. longae, 1-2 cm. latae, supra atro-virides pilis stellatis paucis vestitae, saepe demum glabrae, subtus cano-tomentosae, lepidotis vel pilis stellatis dense vestitae, raro demum glabrescentes; costa media subtus elevata venae obscurae in lamina carnea occulta. Sori pauci magni ad 0.5 cm. longi, ovales vel oblongi saepe oblique ad 6-20 ad marginem in seriem unam in parte superiori frondis dispositi, contigui sed distincti, subinde 1-2 inter seriem marginalem et costam mediam.

Rhizome branching, long-creeping, thick, 2½ mm. diam., copiously rooting, densely clothed with closely adpressed scales. Scales peltate, acuminate, dark in centre with hyaline margins, fimbriate with soft whitish hairs when young. Fertile and sterile fronds similar in shape, obovate to linear-oblong, retuse or emarginate at apex, cuneate at the base and tapering to a rather long stipes (1½-2 cm.), including the stipes 2-8 cm. long and 1 to 2 cm. broad, thickly coriaceous, dark green above with a few scattered stellate hairs, canescent with numerous stellate hairs beneath. Costa prominent below, otherwise the veins concealed in the texture. Sori extremely large

(up to 0.5 cm. long), not numerous, oval or oblong, more or less oblique to the costa, in some fronds forming a close row of 3-10 sori on each side of the midrib at the margin, in others irregularly scattered between the midrib and margin, often contiguous but fairly distinct in all specimens seen.

Closely related to *C. confluens* and with very similar rhizome scales. The latter species differs, however, in its much longer, narrower fronds of thinner texture, the fertile ones longer than the sterile, and in its smaller sori usually parallel with the costa and forming 1 regular row on each side. Also in *C. confluens* the sori, when contiguous, become quite indistinct.

*Queensland*: Atherton, E. W. Bick, June, 1913 (type); Kairi, E. W. Bick, June, 1913; Yungaburra, C. T. White, Jan., 1918; Malanda, C. T. White, Jan., 1918; Gadgarra Reserve, Atherton Tableland, S. F. Kajewski, No. 1159, July, 1929.

4. *C. acrostichoides* Presl. Epimel. bot. 130 (1849).

*Polypodium acrostichoides* Forst. Prodr. 81 (1786),

Queensl. Fl. VI. 1984 (1902).

Rhizome rather robust, creeping, branched, the scales on younger parts spreading, long, narrow-acuminate, brown with pale margins, fringed with soft white hairs; on older parts short, adpressed, rhomboidal, pel-tate, dark with pale margins. Fronds linear-lanceolate, 15-60 cm. long and 2 cm. broad, contracted into a stipes  $1\frac{1}{2}$ -3 cm. long, coriaceous, midrib prominent beneath, venation concealed in the substance of the frond; upper surface glabrous or nearly so, and sometimes shining, lower surface densely covered with minute, pale, stellate hairs. Sori very small, punctiform, densely crowded (but distinct) between the margin and midrib on the upper  $\frac{1}{3}$  to  $\frac{2}{3}$  of the frond, slightly immersed, the impressions scarcely prominent on the upper surface.

*Distribution*:—Queensland, Ceylon, Malesia, Polynesia, New Hebrides, Philippines, New Guinea. In Australia confined to the tropical coast of North Queensland.

#### ACKNOWLEDGMENTS.

I wish to acknowledge my indebtedness to Mr. C. T. White, Government Botanist, for much valuable advice and helpful criticism in the preparation of this paper, and especially for his Latin translation of the description of the new species.



## TWO NEW DENDROBS FOR NORTH QUEENSLAND. ADDITIONAL NOTE.

By an oversight no locality was given under the description of *Dendrobium Carrii* Rupp and White, published in the last issue of the "Queensland Naturalist" (p. 26). This should be Mt. Spurgeon, T. Carr and C. T. White (flowering specimens), Sept., 1936.

In reference to the other species described:

*D. Fleckeri*.—Dr. Flecker has written to the Rev. H. M. R. Rupp to the effect that his first specimens were collected in the jungle at Platypus Creek, Upper Mossman River in September, 1935, and that Mt. Spurgeon proper does not extend eastwards into the heavier rain-forest belt at Platypus Creek, where the orchid was collected.—Editor.

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## THE FAUNA OF THE LAMINGTON NATIONAL PARK.

By J. EDGAR YOUNG.

When the Government of Queensland decided to reserve the land for the Lamington Park, they performed a deed which will long be appreciated by the people for preserving to the public for all time a glorious piece of country in its state of natural beauty.

It is owing almost entirely to the efforts of two men that this is so.

The late Mr. R. M. Collins, M.L.A., visited it in 1896. and considering it an ideal place for a health resort and scenic reserve, urged its reservation (but not successfully) until his death in 1913. In the meantime, Mr. Romeo Lahey had also been working to the same end for some years, and it is undoubtedly due to his untiring efforts that the park was eventually gazetted in 1915.

Mr. Lahey was the first president of the National Parks Association, and still holds that position.

The park is no doubt one of the finest in Australia, having great scenic beauty, many fine waterfalls in rugged gorges, a wealth of vegetation, including its ancient Antarctic beeches, and glorious floral attractions in season. Its animal life, and its undoubted number of rare and beautiful birds, etc., all help to make its 47,000 acres of scrub or rain forest, its grass and timbered mountain sides, and even an area of swamp and heath, one of the most interesting areas of its kind in Australia.

It is with the various forms of the fauna, or animal life that I wish to deal for a short time in this article.

*Ornithology*.—In regard to its birds the park takes a very high place, not merely for the number of the species included in it, which is in itself large, but in respect of the rarity or interesting characteristics of a number of the denizens of its scrub or rain-forest.

Commencing with the lyre birds, the champion mimics of Australia, if not of the whole world. One or two observers of my acquaintance, who should be in a position to know, say that both species, *Menura novae hollandiae* and *alberti*, are to be found here, one in the denser scrub, and the other around its thinner margins; at all events *alberti* is there in considerable numbers, though being extremely shy, they are not seen by everybody.

These beautiful ground birds, with their wonderful powers of imitating any sound or call, and who build a large nest on a rock ledge or in a tree fern are now too well known to need any lengthy description.

Then the rufous scrub bird, *Atrichornis rufescens*, quite a mite in comparison with the last, but resembling it in some of its characteristics (Chisholm describes it as almost a miniature lyre bird). It is also a scratching ground bird, has a bristly tail, which it carries wrenlike, upright on its back, is extremely shy, builds a domed nest on or near the ground, and darts rapidly about under bushes and windfalls, calling chit-chit-chit loudly, and has, contrary to early observers' statements, been known to fly several yards at a time. First seen in 1865, and found in the park by Chisholm in 1918-19, the species is confined to a small area in south-eastern Queensland and north-eastern New South Wales. One other species, *A. elamosus*, the first found was in a small area in south-western Australia and is now believed to be extinct. It seems strange that these birds should be only found in two small areas so far apart, possibly isolated by climatic or other changes of long ago.

The log runner, *Orthonyx temminckii*, the bird with straight claws, is essentially another ground bird, having a spiny tail. The colour is brown, the male having whitish undersurface and the female the throat and chest rust red. Its noisy call quick-quick, is typical of its movements which are very rapid. The spiny tail is used as a rest when scratching, in which Chisholm says it lies almost flat on its breast at times with wide spread feet. The nest is a domed structure on the ground or on a convenient log. Like the *Atrichorni* this bird in its two species is only known in two places nearly 1,000 miles apart, the species in question and *O. spaldingi* in a small area in North Queensland.

*Pitta versicolor*, known as the noisy pitta, is a beautifully coloured bird, in green, black, buff, blue and scarlet;

has a loud call resembling "walk to work," is a ground bird, and an inveterate enemy to land snails, which it eats after carrying for breaking purposes to a convenient stone or root.

The regent bower bird, *Sericulus chrysocephalus*, a most beautiful bird in gold and black, the female being grey with a black cap, makes a playground and occasionally a bower, decorated with land snail shells, leaves and berries, lives on insects, berries, wild and garden fruits. The males do not attain full plumage for some years.

The satin bower bird, *Ptilonorhynchus violaceus*, is quite numerous and builds a bower ornamented by any articles of blue, such as feathers, glass, blue bags and berries, and even blackens the inside walls by means of charcoal moistened in its mouth. It is a fruit eater and is not liked by orchardists.

The rare olive whistler, *Pachycephala olivacea*, was first identified in the park in 1919 by Chisholm, though the strange voice had been noted for some years previously.

The golden whistler, *P. pectoralis*, is a beautiful bird, with a fine voice and appreciates the thicker areas rather than the open forests.

The eastern shrike tit, *Fulcunculus frontatus*, is a beautiful crested bird with similar colours to the last, usually keeps high up in the trees, and has a powerful beak for tearing bark when searching for insects. It is not particularly numerous.

The eastern whip bird, *Psophodes olivaceus*, is a great favourite but rather shy, frequently heard in scrubs or about jungly gullies. Its whiplike call and the reply being distinctive and unique. It tears bark off trees, and turns over bark and leaves in search of insects. I see that this bird has recently been credited with a quite good imitation of other bird voices. I hope to hear it doing so ere long.

The paradise rifle bird, *Ptiloris paradisea*, is beautiful in shot green and black, lives on insects secured under the bark of tree trunks, fruits, &c., and ornaments its nest with green ferns and discarded snake skins. It is frequently seen about the edge of the rain forest, but not in the open.

The foregoing birds alone, all more or less inhabitants of the scrub, are sufficient to place the Park in a high position amongst such places; there are, however, many more scrub dwellers as well as those of the more open spaces.

Amongst these are the green cat bird, *Ailuroides crassirostris*, which ranks with the bower birds, but builds no bower, it is very common in places and its call closely resembling the "miaou" of a cat is well-known to visitors to the scrubs.

The Australian ground thrush, *Oreocincla lunulata*, is widely distributed in rain forests generally, and is a somewhat shy ground bird; its plumage is much marked by half-moons on the feathers.

The rufous shrike thrush, *Colluricincla megarhyncha*, is usually a scrub bird. It has a splendid note, thought by some to excel that of its relative, the grey thrush, *C. harmonica*, which is found in the more open forest country.

The scrub turkey, *Alectura lathamii*, the well-known mound builder, whose eggs are incubated by the heat of the decaying matter of the mound. The chicks are able to fly when hatched.

The yellow shrike robin, *Eopsaltria chrysorrhoa*, is frequently seen perching or clinging to the trunks of trees, as if listening for insects under the bark.

The white browed, buff breasted, large billed and yellow throated, scrub wrens may often be seen amongst the undergrowth.

Of the honey eaters, the "lewin" is the noisiest, while the brown *stigmatops*, the "chicknp," and perhaps the spinebill may be seen in the openings, while other small species mostly keep to the tree tops.

There are places also, usually on the margins of scrub, where eucalypts of only a few years' growth occur, where the bell miner's tink-tink may be heard in every direction. Their food seems to be obtained from the undersides of the leaves.

The rufous fantail and its relative, the grey fantail, or "cranky fan," respectively, like the thick brush and somewhat more open forest.

The black-faced flycatcher, which builds a nice moss nest with whitish trimmings, may be seen here and there.

Turning to the pigeons of the scrubs we have the top-knot, the old "flock pigeon" of the coastal scrubs, *Lopholaimus antarecticus*, once known in immense flocks, the roar of whose wings could be heard a mile or two away when "banking" to a scrub or perhaps to avoid a hawk. They are no longer very plentiful, as most of the old feeding grounds have been felled, and they are frequently taken by hawks now, when going from scrub to scrub for fruit and berries. They are tree-top feeders.

The wonga, *Leucosarcia melanoleuca*, that splendid grey pigeon of the ground, is found in scrubs and surrounding brushes.

The red crowned pigeon, *Ptilinopsis regina*, a small but beautiful pigeon.

The wompoo or painted pigeon, *Megaloprepia magnifica*, a fine pigeon beautifully coloured.

The brown pigeon, also known as pheasant or long-tailed pigeon, eats berries about the borders of scrubs, and is sometimes seen in small flocks.

There is also the white-headed pigeon, and the little green pigeon which has white shoulders.

Of the birds belonging purely or mainly to the forest there are:—

The brown quail and the stone curlew. The bronze-wing pigeon, *Phaps chalcoptera*. The peaceful dove and the bar shoulder dove may be found in suitable places, and their familiar voices, doo-oo and wock-a-woo, may be often heard.

Strangely enough, there is a colony of the western crested pigeon, *Ocyphaps lophotes*, either escapees from an aviary or driven down by drought, now established some two or three years at one spot right adjacent to the park, and probably crossing the boundary. They are increasing in numbers and will probably be seen in parts of the park before long. Some of these were seen at our last Easter camp.

Cockatoos are represented by the white cockatoo, *Cacatua galerita*. This, when farm crops are not available, feeds about the ground on the borders of scrubs on various bulbous roots, grain, seeds, etc.

The red-tailed black cockatoo, *C. banksii*, and the yellow-tailed, *C. fuscus*, may both be seen at times. They are slow of flight and live on wood-boring larvae, caterpillars, casuarina, and other seeds.

The king parrot and the crimson rosella or mountain lowry, also the pale-headed rosella, the musk, and scaly breasted lorikeets, as well as the rainbow lorikeet, all find their living in their various ways. There are also the magpie lark, pied and grey butcher birds, black-backed magpie, scrub magpie, and crows.

The boobook owl and the frogmouth also add their distinctive voices at night.

The kookaburra, *Dacelo gigas*, can always be seen, as can the forest and sacred kingfishers, *Haleyon macleayi* and *H. sanctus*, while the blue kingfisher, *Aleyone azurea*, shows its bright colours flitting about the streams.

Some other birds of the forest, though not a full list, are:—

The brown gerygone, silvereye, black and white fantail, restless flycatcher, brown flycatcher or "Jacky Winter," leaden flycatcher, rose robin, blue and red-backed wrens, brown thornbill, weebill, mistletoe bird, pardalote sp., white-throated and brown tree-creepers, white-headed sitella, and red-browed and double-banded finches.



The Flinders cuckoo, koel, the fantail, pallid and bronze cuckoos, and pheasant coucal in season.

The wedgetail eagle is often seen, also the letter-winged kite, crested hawk, and a species of falcon, also the grey goshawk, while in the open spaces the kestrel is usually hovering around.

There are also the welcome swallow, tree martin, masked wood swallow, swift, cuckoo shrike, dollar bird or roller, caterpillar eater, leather-head, soldier bird, sanguineous and white-naped honey eaters, and a number of others.

As no complete list has yet been published, I cannot here mention a number of probables but yet doubtfuls.

*Marsupials of the Park.*—The number of species of these is perhaps somewhat greater than might at first be expected. Unfortunately, the large grey kangaroo is no longer to be seen there owing to hunting in the past, and I am afraid that the graceful whiptail, *Macropus parryi*, is also lacking though not far away, as is certainly the wallaroo, which, I believe, was there at one time, though I have no definite information on this point.

Those remaining comprise occasional specimens of *M. ualabatus*, the so-called swamper, though it inhabits hilly country in places, and there are parts of the park in which it would do quite well.

*M. ruficollis*, the red-necked wallaby, is perhaps the commonest species now in the grass and brush areas.

*M. dorsalis* was formerly very common and is still fairly so, and is readily recognised by its dorsal black stripe.

*M. thetidis* is the common brown wallaby of the scrubs. It is reddish about the neck and shoulders, is frequently heard but rarely seen.

*Petrogale penicillata*, the rock wallaby, exists in fair numbers on the cliff tops and rugged faces, where it is quite at home and may be seen by patient watchers.

The rat kangaroo is fairly plentiful, lying in grass nests made in thick clumps by day, and when alarmed darting off and making for a hollow for safety. It collects grass which it manages to carry under its tail, which seems to be partly prehensile for this purpose.

There are two bandicoots recorded, the long-nosed *Perameles nasuta*, and the short-nosed *Isodon obesulus*. These live on insects, earthworms, etc., while the rat kangaroos live on grasses, roots and underground fungi.

Of the opossums there are the common silver grey *Trichosurus vulpecula* of the forest trees, so greatly in demand during the all too frequent open seasons, and unfortunately, at other times also. This is one of our best

friends of the bush, and every effort should be made by naturalists to see that it is protected as far as possible.

The black opossum of the serubs, *Trichosurus caninus nigrans*, is not so frequently seen but is nevertheless very interesting.

The eastern Australian ring-tail opossum, *Pseudochirus laniginosus*, also occurs frequently, and is recognised by its white tail tip and its habit of making a large domed nest of leaves, etc., amongst the branches in the scrub trees.

The dormouse opossum, *Dromicia unicolor*, Krefft, is a pygmy variety of opossum, having a head and body of only some three inches in length, and is found occasionally living in small hollow pipes in trees.

There is also an even smaller pygmy flying phalanger, named *Aerobates pygmaeus*, Shaw, whose head and body is only about 2 inches in length and tail similar, the latter being feathered.

Unfortunately these wonderful little creatures rarely live long in captivity, probably lacking either special food or company.

The greater flying phalanger, *Petauroides volans*, is found in most forest country in South Queensland and New South Wales. Their screeches may be heard at night in places, such as "Binna Burra," where they have not been destroyed by civilisation.

The lesser flying phalanger or squirrel, *Petaurus sciureus*, is also to be found throughout this district. I recently saw one which a lady had kept as a pet for some years: it was particularly well nourished and had a wonderful coat.

The large spotted tailed tiger cat, *Dasyurus maculatus*, lives in the serubs. I have the skull of one which I found dead on a main track in the park. The common spotted native cat is also common in all such unsettled districts; they live on birds, eggs, etc., and both species sometimes do much damage amongst poultry.

Two other predatory dasyures, are to be found here namely, *Phaseogale penicillata* and *P. flavipes*. The former, a specimen of which was shown last year at one of our meetings by Mrs. Curtis, is said to have also entered hen roosts for fowls. The latter, yellow-footed species, has no brush on its tail. All this family are very active, and live in holes in the rock, or occasionally in tree hollows.

The native bear or koala, *Phascolaretus cinereus*, may rarely be found amongst the eucalypts. This is the greatest of our favourites amongst the Australian wild animals, and should be more plentiful in South Queensland, but I

fear many are killed during the open opossum seasons, when the illegal spotlights are in use.

*Mammals*.—There are at least two bush rats to be found. One is probably *Rattus assimilis*, but without the actual specimens one cannot say for certain.

The native dog, *Canis dingo*, is too well known to describe. It roams the park at will, living on any other forms of animal life it can find.

Of the fruit bats or flying foxes, the common *Pteropus poliocephalus*, or grey-headed flying fox, will always be seen and heard when the trees are in blossom or edible fruit is available.

Of the insect-eating bats, I have no record, but when such is written I believe there will be at least four species to add to the list.

*Monotremes*.—The Echidna, *Tachyglossus aculeatus aculeatus* Shaw, is reported from the park areas.

The Platypus, *Ornithorhynchus anatinus anatinus*, Shaw, is, I am informed by two authorities, to be found in the park streams.

Both of these survivals of a past age lay eggs and suckle their young, but not quite in the usual manner.

*Reptiles*.—The carpet snake, *Python spilotes* var. *variegata*, is found almost anywhere, but usually where there is some shelter, is non-venomous and kills its prey by crushing and then swallowing it.

The green tree snake, *Dendrophis punctulatus*, and the brown tree snake, *Boiga fusca*, are both excellent climbers, living on birds and small animals, etc.

The tiger snake, *Notechis scutatus*, usually brownish or olive coloured, is highly venomous and also fierce. It grows to 5 or 6 feet. It is as well not to mistake this for the harmless carpet snake. It may sometimes be found about the rocky cliff edges and other places.

The red-bellied black snake, *Pseudechis porphyriacus*, is the commonest one of its kind, and grows to 7ft. in length; it is venomous and is rarely found far from water.

The ringed snake, *Furina annulata*, said to be venomous, but is inoffensive and not dangerous. It has black and white bands and averages 20 inches in length.

The death adder, *Acanthophis antarcticus*, has at times been known in the district, and may probably range into the park. It is venomous and dangerous, and has a habit of lying about on a track, frequently in a loop with head and tail together. Usually brown or greyish. It is usually supposed to be camouflaged to suit the locality.

Another venomous species is the banded broad head, *Hoplocephalus stephensi*. This is sometimes mistaken for

the real tiger snake.

A brown-headed snake, *Denisonia signata*, is also found. This is one of the smaller venomous species.

To a novice this list may look dangerous, but should not deter visitors to the park, who use reasonable care, as snakes are not frequently seen, and then usually glide away.

The common black goanna is well known; it lives on birds and their eggs, etc. I myself found one burrowing in a scrub turkey's mound, which at the time contained eggs, and no doubt the goanna gets young turkeys as well.

The handsome skink, *Lygosoma tryoni*, is to be found here; also the blue tongue, *Tiliqua scineoides*, and the big black "mullet" lizard, *Egernia bungana*; also the common jew lizard.

The smaller lizards are present in numbers, including many geckoes, the best known being the harmless grey or whitish lizard which catches insects on the walls or ceilings.

There are also the water or dragon lizards, which drop into the stream at a person's approach, a rare one being *Gonyocephalus spinipes*, of which very few specimens have been found.

*Crustacea, Etc.*—A rather fine freshwater crayfish, *Astacopsis serratus*, Shaw, is found in the rocky streams having holes in the rocks. A tale is told of a party of boy scouts which was stranded in the ranges for two or three days, with the result that the crayfish being in demand, disappeared in that locality, let us hope, only for a time.

A small prawn is also living about the pools.

In addition to eels, and perhaps eatfish in the lower holes, there is another unidentified fish in the pools but in small numbers, being more or less solitary, and up to 9 inches in length.

*Mollusca.*—Of land snail shells there are a number, the larger ones being *Pedinogyra cunninghamii*, *Panda falciferi*, and *Helix richmondiana*, there being a number of smaller species.

*Insects, Spiders, Etc.*—The insect species of the area are very large in numbers, and many are of extreme interest. There are many beautiful butterflies and moths, lacewings, beetles and grasshoppers, bugs, mantids, flies of all descriptions, such as dragon flies, demoiselle flies, stone flies, robber flies, march flies, and many other flies, spiders, scrub ticks, and the queer-legged *Peripatus leichardtii*.

These are all now being studied by scientists, who will probably publish full lists later on.

The full list of any branch of the fauna has never yet been written, and the writer hopes that the foregoing

lines may be of interest to naturalists and others, and particularly any of those who may be thinking of a few days' holiday in the locality.

I have to acknowledge the use of a list of birds from Mr. I. W. Helmsing, which was of considerable assistance to me in compilation. I must also thank Mr. H. A. Longman, Director, Queensland Museum, for details concerning reptiles.

## RECORDS OF QUEENSLAND FUNGI.—II.

By D. A. HERBERT, D.Sc., Department of Biology,  
University of Queensland.

This list is supplementary to Records of Queensland Fungi I., "Queensland Naturalist," IX. (3), 44-46. In that list, *Puccinia aucta* is recorded from *Pratia excelsa*; a correction is necessary, the host being *Pratia crecta*.

*Basidiomycetac.*

### *Pucciniaceae*—

*Puccinia calendulac*, McAlp., on leaves of the English marigold, *Calendula officinalis*. This species described by McAlpine in 1896 is common in the southern States, but has only within the last three years become a pest in Queensland. The aecidial stage is common at all seasons, but the black teleutosori are not uncommon.

*Puccinia calotidis*, McAlp., on *Calotis hispidula*. Coll.: S. T. Blake, Windorah, 12/7/1936. McAlpine records this from New South Wales from *C. cuneifolia* and *Calotis* sp. In the Queensland material the aecidial stage only is present.

*Puccinia cinerariae*, McAlp., on leaves of cultivated cineraria. Coll.: F. W. Blackford, Brisbane, 1318/36. Aecidial stage. This rust is not common in Brisbane.

*Puccinia coronata*, Corda, on *Lolium rigidum*. Coll.: D. A. H., Brisbane Botanic Gardens, October, 1934. As the aecidial stage is not found in Brisbane, I have followed Arthur and Fromme in assigning the fungus to *P. coronata*.

*Puccinia distincta*, McAlp., on *Bellis perennis*. This fungus was found on seedlings of English daisy exposed for sale in Brisbane in 1924, and was not noticed again until 1935, when all stages were found in various suburbs of the city. It is now a fairly common disease of the daisy.

*Uromycladium alpinum*, McAlp., on *Acacia decora*. Coll.: D.A.H., Gayndah, August, 1935. This



has been recorded on *Acacia linifolia* from Nerbool Creek, Roekhampton, by McAlpine. This is probably *Acacia decora*.

*Ustilaginaceae*—

*Cintractia crus-galli* (Tr. & Earle) Magn. on *Echinochloa crus-galli* (Barnyard Grass). Coll.: R. F. Newton Langdon, Lawes, May, 1937.

***Cintractia isilematis*, n. sp.**

*Spores globular, sub-globose or somewhat angular, 10-12 micra diameter, smooth with granular contents, the immature colorless spores held together in masses which disintegrate as maturity is attained.*

*Sori at first enclosed in a sheath disintegrating from the apex exposing the black mass of spores. Attacked spikelets lose their awns.*

*Hosts: Iscilema spp. Hughenden, S. T. Blake 11564, 20/5/36. North of Hughenden. S. T. Blake 12654 A, same date.*

*Iscilema vaginiflorum* Domin. North of Ilfracombe, S. T. Blake 11360 A, 3/5/36.

*Cintractia leucoderma* (Berk.) P. Henn, on *Rynchospora aurea*. Coll.: F. W. Blackford, Cairns, 6/7/34. Not previously recorded from North Queensland.

*Cintractia spinificis* (Ludw.) McAlp., on *Spinifex paradoxus*. Coll.: S. T. Blake, south of Betoota, 16/7/1936.

*Sorosporium consanguineum*, Ell. and Ev., on *Aristida* sp. Coll.: S. T. Blake, Noondoo, near Dirranbandi, 29/2/36.

*Sorosporium paspali*, McAlp., on *Paspalum dilatatum*. Coll.: F. W. Blackford, Lawes, 30/8/33.

*Tolyposporium muellerianum* (Thuem.) McAlp., on *Gahnia aspera*. Coll.: H. St. J. Pratt, Stanthorpe, May, 1937.

*Melanopsichium austro-americanum* (Speg.) Beck. McAlpine, describing material collected near Brisbane by Baneroff in 1879, remarks that the galls are formed in the stem in the Queensland specimens; in North America they are chiefly in the inflorescence, and in South America chiefly on the leaves. The fungus is common on the various species of *Polygonum* of the water pepper type by the creeks and rivers round Brisbane, and galls are commonly found in inflorescences, more rarely on leaves.

**MOLLUSCAN NOTES No. 2.****A TYPICAL COLLECTING TRIP TO TAMPPIAN  
BEACH, NEAR EMU PARK, CENTRAL  
QUEENSLAND.**

By Herman F. Bernhard.

Most of my trips to the seaside are made on Sundays, between train times, and as specific dates are of no concern here I have not bothered to quote.

Having equipped myself with lunch and a flask of black coffee, also shell collecting gear (empty tins, specimen jar, sticking knife, and shell bar for levering), I took the 9 a.m. train for Emu Park from Rockhampton, alighting at Phillip Street Siding and cutting across the causeway to Fisherman's Beach, struck north towards the neck and head of Tampian Heads, thence across the neck on to Tampian Beach, heading for the rocks half way up the beach towards Boyd's Point, named after Mr. Boyd, of Mt. Morgan Ltd., at the southern end of the beach. The rocks along Tampian Beach at low tide are part of the beach, and in 1934 between August and December proved a profitable hunting ground for me. I did a lot of limpet hunting there, especially the tiny ones; incidentally limpets prefer smooth rocks free from coralline or other marine growth of a hard nature. To lift limpets off easily, one must not handle them with the fingers first. The limpet will try and move closer to the rock, making an airtight seal. Push the point of a knife between the shell and rock, and it cannot do this. It is thus easily lifted off the rock. When lifted and wanted for study, plunge each species in a separate jar of sea-water and leave them till they extend and come out of their shell, when they can easily be studied by magnifying glass as to colouration, shape, etc.

**NOTES ON THE SPECIES.**

(S.M. = Sydney Museum)

*Fissurella lanceolata* Sby.—Keyhole oblong.

*Fissurella elaborata* Sby.—Keyhole like a cross; rare.

*Montfortula conoides* Rve.—Two small northern forms.

*Montfortula nigrosa* Rve.

*Emarginula variegata* Ad.—Body and siphon white, no markings. Creeping disk dirty blackish brown.

*Fissurella (Glyphis) Jukesi* Rve.—Keyhole Limpet.

*Patelloida* (unnamed), S.M. 593, etc.—Dark sap green, creeping disk or bottom of foot with pale whitish

blue mark in centre; body pale bluish white to colour of creeping disk, no markings visible.

*Cellana* sp. S.M. 23-26, 582, 583 and 594. Creeping disk dirty blackish brown, body white. Top of foot dark khaki-green. At head mantle forms a recess wherein siphon reposes when not feeding as in species of *Acmea*. Siphon pale coloured.

*Cellana tramoserica* Martyn.—Golden shell and black marking internally.

*Scutus* (species unnamed).—The black and the variegated animal—Elephant Snail.

*Acmea submarmorata*.—The Queensland form. (*A. marmorata*, is the Tasmanian form). Names refer to geographical distribution. Creeping disk dirty white, also sandy coloured. Blackish blue mark at back and sides of siphonal recess in front (at head) and centre of siphon, brown speck at foot of siphon which may be the mouth, pure white elsewhere.

*Notoacmea*—like *scabriuscula*, Aug.—Shell inside; black centre and around outer edge with broad pale blue band in between. Creeping disk pale greenish colour, foot pale green, body white, with a dark purple line at back. Siphon same colour as foot and speck of black or dark purple in centre and around outer and inner edge near shell, may be the shell itself.

*Notoacmea* near *flamex-dimunita* Iredale.—(Not studied yet).

*Siphonaria*—like *denticulata*, unnamed, S.M. 580, 581.—Creeping disk a dirty yellow, sandy colour. Top of foot white to colour of creeping disk with black markings and irregular spots, faint black dotting on upper side of feelers and mantle and body white; brownish red mouth. Top of shell heavy, a cover of fur-like epidermis that matches its environment as to colouration.

*Siphonaria atra*.—Only the black inner shell is atra, the coloured ones are unnamed; animal colour studies not conclusive as yet.

*Siphonaria Baconi*, Rve.—Furthest north recorded yet—a light coloured shell.

*Callistelama antiquata*, Rve.—Is common under stones, about a quarter inch long.

*Leiolophora queenslandicus*.—Is found clinging between the two tide marks.

*Onithochiton quercinus* Gld.—Is found at dead low spring tide adhering to stones, etc., only.

Of other shells there are:—

*Nerita striata* Burrows, *N. albicilla* L, *N. costata* Gmelin.

*Turbo mespilus* Gml.—Common.

*Monodonta*, *M. labio* L., *M. obtusata* Dillw.

*Planaxis sulcatus* Lamarek.

*Euchelus atratus* Gmel.—Very small.

*Arca afra*.—Under stones.

Coming home along high tide mark a few other forms were gathered.

*Austromactra caloundra* Iredale.

*Mesodesma elongata* Reeve.

*Donax faba* Gmelin.

*Arca A. tortuosa* L. very common. *A. pilula* Reeve.

*Natica conica*.—Lk. the Sand Whelk, very common.

I caught the 5 p.m. train home for Rockhampton after a successful day's collecting.

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### MACROBIOCARPY IN AUSTRALIAN PLANTS.

Fraulein Charlotte Kliem, Botanical Department of the University of Breslau, Gopperstrasze 6-8, Breslau, Germany, has written me to the effect that she is studying the phenomenon of macrobiocarp.

According to Delpino, who first studied the subject, macrobiocarps are those fruits that keep closed and fixed to the parent plants for a long time after the ripening of the seed without scattering them. This condition occurs particularly in the Australian flora, especially in the Myrtaceae, such as many species of *Leptospermum*, *Callistemon*, *Kunzea*, etc., and Proteaceae: *Haakea*, *Banksia*, *Dryandra*, etc., and Casuarinaceae.

Miss Kliem is very anxious to get hold of specimens from Australia and particularly notes from persons who have made any observations on this question. If they would write to her she would be very much obliged.

C. T. White, Government Botanist, Brisbane.

# QUEENSLAND NATURALISTS' CLUB.

FINANCIAL STATEMENT FOR YEAR ENDING DECEMBER 31st, 1936.

| RECEIPTS.                         |    |    |          | EXPENDITURE.                             |    |             |            |
|-----------------------------------|----|----|----------|------------------------------------------|----|-------------|------------|
|                                   |    | £  | s. d.    |                                          |    | £           | s. d.      |
| To Cash at Bank from 1935         | .. | .. | ..       | By Rent to Women's Club                  | .. | 12          | 5 0        |
| " Subscriptions received          | .. | .. | 85 5 11  | " Secretary, Petty Cash                  | .. | 12          | 0 0        |
| " Sale of "Naturalist"            | .. | .. | 48 5 0   | " Insurance                              | .. | 0           | 9 11       |
| " Tent Hire                       | .. | .. | 0 5 0    | " Brown & Sons (Tent Fly)                | .. | 5           | 11 8       |
| " Balance Nature Lovers' League   | .. | .. | 0 10 0   | " Clark & Mackay (Printing "Naturalist") | .. | 20          | 8 9        |
| " Sale Nature Lovers' Certificate | .. | .. | 14 18 10 | " Deficit Easter Trip                    | .. | 2           | 0 0        |
| " Wildflower Show                 | .. | .. | 0 2 6    | " Barker's Store (Magazines)             | .. | 1           | 10 0       |
| " Lantern Hire                    | .. | .. | 20 15 7  | " Wreath                                 | .. | 0           | 10 6       |
| " Commonwealth Bank Interest      | .. | .. | 1 0 6    | " Cinema Lantern & Operator              | .. | 1           | 0 0        |
|                                   |    |    | 1 18 8   | " Wildflower Show                        | .. | 21          | 8 7        |
|                                   |    |    |          | " N. Bell (Lantern Fitting)              | .. | 1           | 9 8        |
|                                   |    |    |          | " Balance Forward in Bank                | .. | 94          | 7 11       |
|                                   |    |    |          |                                          |    | <u>£173</u> | <u>2 0</u> |

6/2/37.

F. V. KUNZE,  
Hon. Treasurer

11/2/37.

C. W. HOLLAND,  
Hon. Auditor.



# THE QUEENSLAND NATURALIST

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AND NATURE-LOVERS' LEAGUE

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No. 4

## PROCEEDINGS.

EVENING MEETING, MONDAY, 19th JULY, 1937.—The chair was occupied by the President, Dr. W. H. Bryan, and about forty members were present. Misses M. P. and T. Hawken were elected members of the club. The principal business was a lecture by Mr. H. J. Freeman of the Dept. of Agriculture and Stock, who gave an interesting address on "North Queensland as we Should Know It." It was illustrated by lantern slides from photographs taken by Mr. W. J. Sanderson and others.

EVENING MEETING, MONDAY, 16th AUGUST, 1937.—The chair was occupied by the President, Dr. W. H. Bryan, and about forty members were present. Mr. H. N. Love was elected as an ordinary member of the Club. Reports on the excursion to Beechmere were given by Dr. E. O. Marks (Geology), Mr. N. Jack (Birds) and Mr. C. T. White (Botany). Reports on the excursion to Nursery Road were given by Dr. W. H. Bryan (Geology) and Mr. C. T. White (Botany). The principal business of the evening was a lecture by Mr. T. King on the natural history of the Antarctic. Mr. King was a member of a Norwegian whaling expedition to the Ross Sea, and gave interesting notes on birds and sea-life of the region. The lecture was illustrated by a number of lantern slides of pictures taken in the field. Exhibits were tabled by Miss Ernsshaw (flowering specimens of Portuguese Elm-*Celtis sinensis*), by Miss Williamson (some miscellaneous specimens from Beechmere), and by Mr. Ken Jackson (aboriginal stone axe-heads).

EVENING MEETING, MONDAY, 20th SEPTEMBER, 1937.—The chair was occupied by the President, Dr. W. H. Bryan, and forty-four members were present. Dr. J. B. Henderson was elected a country member of the Club. Reports on the excursion to Mount Tibrogargan were given by Dr. E. O. Marks (Geology), Mr. N. Jack (Birds), and Miss Clark (General). Dr. F. W. Whitehouse gave a lecturette on sea-shells. He illustrated his remarks with specimens and pictures. Mr. G. H. Barker gave a lecturette on bird observing.

## EVENING MEETING, MONDAY, 18th OCTOBER,

1937.—The chair was occupied by the President, Dr. W. H. Bryan, and fifty-seven members were present. Reports on the excursion to Castra were given by Dr. E. O. Marks and Dr. W. H. Bryan (Geology), and Mr. C. T. White (Botany) and Miss E. N. Baird (Birds). The President extended a hearty welcome to visiting members of the Royal Australian Ornithologists' Union who were present. Miss Wigan, of the Union and of the Bird Observers' Club of Victoria, gave a lecture on the lyre bird, and showed lantern slides taken by Mr. Tom Tregellas of the lyre bird in its home. Mr. Tregellas for seventeen years spent week-ends and holidays in a hollow log which he called "Menura Log" to study and photograph the birds in their natural habitat. A series of pictures showing bird life at Moree observed on the location of the union's camp there was also shown. A gramophone record of the song of the lyre bird was played. Exhibits were shown by Mr. J. E. Young (specimens of a number of Northern and Central Queensland birds), Miss Wigan (land shells from the Lamington National Park), and Mr. Ken Jackson (specimens of columnar basalt).

EVENING MEETING, MONDAY, 15th NOVEMBER, 1937.—The chair was occupied by the President Dr. W. H. Bryan, and fifty-five members were present. An appeal by the purchase of literature and moral support in every way for the protection of the Koala was read from Mr. Noel Burnett, of Koala Park, Sydney. Reports on the excursion to Lone Pine were given by Dr. E. O. Marks (Geology), Mr. S. T. Blake (Botany) and Mr. J. E. Young (Birds and Animals in the Lone Pine Zoo). A lecture on a recent visit to Europe and illustrated by a very fine series of lantern slides was given by Mr. J. Nebe. Mr. J. E. Young showed specimens in flower of a rare orchid (*Liparis Simmondsii*), Mr. K. Jackson showed specimens of stone axe-heads, and Miss Clark various natural history specimens.

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SHIELD FERNS:—THE GENUS *POLYSTICHUM*  
IN AUSTRALIA.

By D. A. GOY, *Botanic Museum and Herbarium, Brisbane.*

In the old method of fern classification as outlined in Bentham and Mueller's "*Flora Australiensis*" and

Bailey's "Queensland Flora," *Polystichum* constituted a subdivision of the comprehensive genus *Aspidium*. It was separated as a genus by Roth in 1799. The genus is readily distinguishable from its nearest relative, *Dryopteris*, by the very unequal-sided pinnules, the more coriaceous and rigid texture and the usually scaly stipes.

*Polystichum* is a large genus comprising over a hundred species (108 according to Christensen's Index Filicum), which are widely distributed over all the continents of the world. The Australian species number only six, five of which occur in Queensland, the remaining one (*P. hispidum*) being confined in Australia to New South Wales, Victoria and Tasmania. One of the species (*P. fragile*) is restricted to North Queensland in the vicinity of Ravenshoe. New South Wales also records five species, including four of the Queensland ones and *P. hispidum*; Victoria has three species—*P. adiantiforme*, *P. aculeatum* and *P. hispidum*, while South Australia has only one—*P. aculeatum*.

Ferns of this genus are popularly referred to as Shield Ferns.

#### GENERIC DESCRIPTION.

Sori roundish, dorsal or terminal on the veins. Indusium round and peltate, or rarely reniform and attached by the sinus.

Rhizome creeping or erect. Stipes not articulate to the rhizome, usually more or less densely clothed with scales at least at the base. Fronds tufted or distant, 2-4-pinnate in Australian species, coriaceous and rigid, the leaflets unequal-sided, either with the lower side less developed or the upper base broadly truncate and the lower obliquely cut away; margins often spinulose; veins free.

#### KEY TO THE SPECIES.

A.—Margins of the fronds acutely toothed or spinulose.

B.—Fronds 2-3-pinnate, ultimate segments broad. Rhachis (except for the scales) smooth or minutely scabrous.

C.—Stipes and rhachis coarsely scaly and fibrillose, Segments acutely toothed .... 1. *aculeatum*

CC.—Stipes and rhachis more or less scaly with fine narrow

scales. Segments aristate-toothed.

D.—Rhizome creeping.  
Scales pale, twisted  
and hairlike ..... 2. *aristatum*

DD.—Rhizome tufted. Scales  
dark, flat, linear-lanceolate ..... 3. *carvifolium*

BB.—Fronds 3-4-pinnate, finely divided into narrow segments. Rhachis exceedingly scabrous and hispid with spreading hair-like scales ..... 6. *hispidum*

AA.—Margins of the fronds obtusely toothed or lobed.

E.—Costae of pinnules elevated on upper surface. Fronds coriaceous, not brittle when dried ..... 4. *adiantiforme*

EE.—Costae of pinnules elevated on lower surface. Fronds subcoriaceous, very brittle when dried ..... 5. *fragile*

## DESCRIPTION OF SPECIES.

1. *P. aculeatum* (L.) Schott Gen. Fil. ad t. 9. 1834.

*Aspidium aculeatum* Sw.; Benth. Fl. Austr. VII. 757 (1878), F. M. Bailey Queensl. Fl. VI. 1977 (1902).

Rhizome erect or suberect, short and stout, scaly. Stipes robust, tufted, 10-20 cm. long, when young densely clothed, especially at the base, with large ovate-lanceolate, dark-brown, shining scales intermixed with paler fibrillose scales. Fronds without the stipes 15-30 cm. long, 7-20 cm. broad, 2-3-pinnate, deltoid-lanceolate, acuminate. Texture coriaceous; surfaces naked or the under surface sparsely fibrillose. Rhachis clothed with deciduous scales (as on the stipes). Primary pinnae numerous, close, linear-lanceolate, the basal pair longest (5-10 cm.), the rhachis fibrillose. Secondary pinnae shortly petiolulate,

numerous, close, often again pinnate or pinnatifid at the base, ovate-lanceolate to rhomboidal, the upper base truncate and parallel with the rhachis, the lower side cut away; margins prickly toothed. Sori in 1 row on each side of and close to the costa, about 6-10 per pinnule.

*Distribution*:—Widely spread over most of the temperate and sub-tropical regions of the world.

*Queensland*:—Rare, confined to the southern portion of the State: Toowoomba, Mistake Range, Blackall Range, Mt. Ballow and Lamington National Park (Macpherson Range).

*N.S. Wales*:—Port Jackson, Clarence River, Richmond River, Macleay River, Illawarra.

*Victoria*:—Common everywhere except in the north-western portion of the State.

*South Australia*:—South-eastern portion—almost cosmopolitan.

*Tasmania*:—Derwent River.

2. *P. aristatum* (Forst.) Presl Tent. Pterid. 83 (1836).

*Aspidium aristatum* Sw.; Benth. Fl. Austr. VII., 757 (1878); F. M. Bailey, Queensl. Fl. VI, 1978 (1902).

Rhizome creeping, densely hairy-sealy. Stipes scattered, 20-60 cm. long, densely clothed with pale brown, fibrillose scales towards the base. Fronds 30-60 cm. long without the stipes, ovate-deltoid, apex acuminate, 2-3-pinnate, glossy, subcoriaceous, glabrous except for the deciduous fibrillose scales on the rhachises. Primary pinnae deltoid-lanceolate, the basal pair the largest (8-20 cm. long), pinnate or bipinnate at the base. Ultimate segments ovate-rhomboidal, upper base truncate, lower base obliquely cut away, the margins spinulose dentate. Sori small, in two rows close to the midrib.

*Distribution*:—Australia, New Zealand, India, Malaya, China, Japan, Polynesia, Natal.

*Queensland*:—Recorded in "Flora Australiensis" from Rockingham Bay (Dallachy) and Port Denison (Fitzalan); collected from Mt. Spurgeon, N.Q., by C. T. White, 1936. The only other specimens represented in the Queensland Herbarium are from the southern part of the State (Brookfield and Enoggera Creek, Brisbane; Candle Mountain; Conondale National Park).

*N.S. Wales*:—New England, Hastings River, Tweed River, Illawarra. (These localities, taken from the "Flora



Australiensis," probably also refer to *P. carvifolium*, which has since been separated as a distinct species).

3. *P. carvifolium* (Kze.) C. Chr. Ind. Fil. 580 (1906).

*P. aristatum* Presl var. *carvifolium* Maid. & Betehe.

*P. conifolium* Presl. Domin in Bibliotheca Botanica XX, p. 57 (1915).

Rhizome tufted, clothed with lanceolate scales. Stipes tufted, 20-60 cm. long, more or less densely clothed at the base with dark, linear-lanceolate scales. Fronds as in *P. aristatum*, except that the scales on the rachises and stipes are dark, flattened and linear-lanceolate, not fibrillose.

*Distribution*.—*Eastern Australia, Malaya, Polynesia, Japan, China, North India, Natal.*

*Queensland*.—Recorded from Mt. Lindesay and Lamington National Park on the southern border, to Rockingham Bay.

*N.S. Wales*.—No data is available as to distribution in this State, but the localities listed under *P. aristatum* probably also apply here.

The last two species are very closely allied, but having seen both plants growing in their natural habitat, I have no doubt that they are specifically distinct. In the former the base of the stipes is furnished with pale, fine, narrow scales which are twisted towards the apex, appearing fibrillose, and the fronds are scattered along a creeping rhizome. The latter species, on the other hand, has dark-brown, narrow, flattened and rather stiff scales on the stipes, and the fronds are tufted on an erect rhizome.

4. *P. adiantiforme* (Forst.) J. Sm., Hist. Fil. 220, 1875.

*Aspidium capense* Willd.; Benth. Fl. Austr. VII, 758 (1878).

*Polystichum coriaceum* Schott, Handb. Ferns Queensl. 46 (1874).

Rhizome stout, long-creeping, densely covered with large, soft, brown, lanceolate-subulate scales. Stipes robust, 7-35 cm. long, more or less clothed with brown, spreading, deciduous scales. Fronds scattered along the rhizome, without the stipes 14-35 cm. long, 8-18 cm. broad, lanceolate to deltoid-lanceolate, apex acuminate, rigidly coriaceous, both surfaces glabrous except the deciduously scaly rachises, bipinnate or tripinnatifid at the base. Primary pinnae erecto-patent, stipitate, deltoid-lanceolate, more or less decurrent on the rachis, bipinnatifid at the base, the lowest pair the largest; ultimate segments

oblong, coarsely and broadly lobed or almost entire, obtuse; veins free, pinnate, simple or forked, the costae flexuose and elevated on the upper surface. Sori large, usually in two rows close to the midrib but more numerous in larger pinnules. Indusium large, orbicular, peltate, entire, persistent.

*Distribution*:—Australia, Polynesia, New Zealand South Africa, America (Antilles to Southern Chile).

*Queensland*:—First recorded for this State from Tamborine Mountain by Domin (Bibliotheca Botanica XX, p. 57, 1915), with the note that this probably represents its most northern limit. No further record has since been made.

*New South Wales*:—Coast District and Dividing Range from Macleay River to Victoria.

*Victoria*:—North-eastern, eastern and southern portions of the State.

*Tasmania*:—Derwent River.

5: *P. fragile* W. Watts, Proc. Linn. Soc., N.S.W., XXXIX, Pt. 4, p. 775 (1914).

Epiphytic. Rhizome thick, creeping, densely clothed with brown, narrow and flexuose, acuminate scales, stipes 40-60 cm. long, flexuose, clothed at the base with pale brown scales, naked above, scarcely muricate. Fronds broadly lanceolate, 60-80 cm. broad at base, loosely bipinnate, lower pinnae opposite, upper alternate, narrow-lanceolate, 10-40 cm. long and 10 cm. broad; texture subcoriaceous, colour pale green, scarcely shining, glabrous. Pinnules lanceolate, equal on both sides, lower ones 2-3 cm. broad at the base, pinnatifid to the winged rachis, upper ones subentire, pinnately nerved but nerves indistinct, very brittle when dried, pinnules with the costae distinctly elevated on the under surface, depressed above. Sori medial, up to 8 per pinnule, solitary on the lobes; indusium rotund, deeply incised, soon shrivelling and fugacious.

*Distribution*:—Recorded by Watts from Major's Homestead, near Ravenshoe, North Queensland in 1913, but not found since as far as is known.

6. *P. hispidum* (Sw.) J. Sm., Journ. Bot. IV, 195, 1841.  
*Aspidium hispidum* Sw., Benth. Fl. Austr. VII, p. 760, 1878.

Rhizome stout, long-creeping, densely covered with dark subulate scales. Stipes 15-50 cm. long, rather slen-

der, muricate, densely clothed, especially at the swollen base, with long, slender, spreading, dark-brown scales. Fronds without the stipes 20-40 cm. long, 15-25 cm. broad, ovate-lanceolate or deltoid in outline, subcoriaceous, 3-4-pinnate, the primary and secondary rachises muricate and clothed with stiffly spreading, dark, hair-like scales. Primary pinnae 8-20 cm. long, oblong, lanceolate, acuminate, the lower ones at least bipinnate, upper ones pinnatifid to the winged rachis, shortly hispid beneath on the main nerves. Secondary pinnae numerous, the lower ones at least bipinnatifid, uppermost ones pinnatifid or toothed. Ultimate pinnules 1-1.5 cm. long, 3-4 mm. broad, deeply and sharply toothed or pinnatifid almost to the midrib. Sori rather large, copious. Indusium orbicular, attached by an indistinct lateral sinus or subpeltate, persistent but shrivelling.

*Distribution*:—New Zealand (abundant in forests throughout); Tasmania; rare in New South Wales and in southern and eastern Victoria.

This species does not occur in Queensland, but as it is the only remaining Australian member of the genus it has been included here for the purpose of making the article complete.

*Acknowledgments*:—I wish to express my indebtedness to Mr. S. T. Blake, of the Queensland University, for the loan of his carefully collected specimens, which were used for some of the accompanying illustrations, and to Mr. C. T. White for his ready advice on all problems.

## *Part XIV.* THE EUCALYPTUS OR GUM TREES OF THE BRISBANE DISTRICT.

By C. T. White, Government Botanist.

(Concluded from the "Queensland Naturalist," Vol. IX.,  
p. 115.)

### 23. *Eucalyptus Curtisii*, *Plunkett Mallee*.

*Description*.—A Mallee-like shrub or small tree, 6-20 feet high, with several stems from a common stock, mostly 2-3 inches in diameter and clothed with a grey-silver bark. Leaves on coppice or stump shoots linear-lanceolate,  $2\frac{1}{2}$ - $4\frac{1}{2}$  inches long, one-twelfth of an inch to one-quarter of an inch wide, paler on the under surface, midrib slightly



*Polystichum aculeatum* Schott.





*Polystichum aristatum* Presl.





*Polystichum adiantiforme* J. Sm.



*Eucalyptus Curtisi*.

Group of trees near Mt. Gravatt. Average height, about 12 feet.

—Photo, Dept. Agriculture and Stock, Brisbane

sunk on the upper surface, elevated on the lower, reticulations (veins and veinlets) obscure on the upper surface, rather distinct on the lower; intramarginal vein  $\frac{1}{4}$  line in the narrower and  $\frac{1}{2}$  line in the wider leaves distant from the edge. Ordinary (secondary or adult leaves) usually straight, but sometimes falcate, markedly coriaceous, green and shining above, paler and more opaque beneath, petiole or leaf-stalk about  $\frac{1}{2}$  inch long, blade 4-5 inches long,  $\frac{1}{2}$ -1 inch wide, midrib slightly sunken above, raised beneath, lateral veins rather obscure and irregular, smaller veins and veinlets very numerous, discernible under a lens; intramarginal vein sometimes plain on the under surface, at other times obscure,  $\frac{1}{4}$  to  $\frac{1}{2}$  line distant from the edge. Flowers in umbels forming panicles in the upper axils, the whole forming a large terminal corymbose rather showy inflorescence. Individual umbels 4-6-flowered, peduncle or panicle branch about one inch long, angular, somewhat compressed towards the top; pedicel angular, about  $\frac{1}{4}$  inch long. Calyx tube campaniolate, about  $\frac{1}{4}$  inch diameter at the top; operculum broadly conical, 2 lines high. Stamens in several series all perfect, longer filaments nearly  $\frac{1}{2}$  inch long, anthers dehiscing by longitudinal parallel slits. Seed capsules broad-campanulate, about a third of an inch in diameter, 4-6 celled, valves very deeply sunk. Seeds small, narrow, dark chestnut colour, sterile and fertile ones very similar, about one line long.

*Distribution.*—So far as known confined to two localities in South-eastern Queensland, sandstone hills near Plunkett (Albert River) and near Mt. Gravatt, about eight miles from Brisbane.

*Common Name.*—Mr. W. F. Blakely in his book "A Key to the Eucalyptus" proposes the name Plunkett Mallee for it.

*Botanical Name.*—*Eucalyptus* (see under No. 1): *Curtisii* after Mr. Densil Curtis of Upper Albert, who first drew attention to the plant.

*Botanical Reference.*—*Eucalyptus Curtisii*, W. F. Blakely and C. T. White in "Proceedings of the Royal Society of Queensland," Vol. XLII, p. 82 (1931).

*Note.*—When this series was commenced, *Eucalyptus Curtisii* had not been described and was unknown in the Brisbane District. It is not, therefore, included in the key in the introductory part.



DESCRIPTIONS OF A FEW NEW PARASITES OF  
PESTS, AUSTRALIAN MOSTLY.

By A. A. GIRAULT, B.Sc.

I have in the following pages given descriptions of a few new Chalcididae parasitic upon pest insects. The first species is an entedonine from New Guinea, also interesting because it so closely resembles its Australian congeners; and represents a distinct though as yet little known genus. *Pleurotropis* is better known; but this Australian genus bears a *prong-shaped* median carina (propodeon) and a median groove distad on the scutum. So it is different from the mentioned European and extra-Australian genus. From the 7-8 Australian species it is distinct mainly in bearing the legs half metallic (to the knees), the scape white.

*ENTEDONINAE.**Apleurotropis lalori* nov.

Metallic blue and as the other species. Coxae and femora concolorous. Petiole square, white, the scape white except at apex wings hyaline. Scape dilated, widest at distal two-thirds, thrice longer than wide, long; pedicel twice longer than wide at apex, equal to the second club joint but thicker (the pedicel is even a little longer than stated); first and second funicle segments equal, about thrice longer than wide, No. 3 slightly shorter, the first club segment longer than the second and still shorter than the third funicle segment, the second club segment bearing a curved spicule nearly as long as itself.

Median groove of the scutum at distal half. Eyes hispid (more densely than in the genotype). Segment No. 2 of the abdomen a fourth part of the surface, the longest segment, then the penultimate or seventh, the rest transverse. Stigmal vein short, curved, its neck as long as the knob, the postmarginal elongate. Antennae inserted between the eye-end and the middle of the face. Hind femora swollen, the hind tibial spur stout, short, but exceeding the dorsal length of the metatarsus. Prong of the median carina (propodeon) with the space between twice longer than wide, a third the length of the rest, which consists of a solid, strong carina; the lateral carina is also strong. Hind tibiae short. Mandibles as in the genotype. Face, vertex hispid. Lateral ocellus over its diameter from the eye, still further from the median and still further yet from each other. The lateral carina is

nearly perpendicular at less than the basal half, then gently curves far disto-laterad; the small, round spiracle is not right on to it and is cephalad. Sunken part of the parapside glabrous, its bristle meso-sephalad of its centre. Scutum and parapside transverse-reticulate; propodeon glabrous. Pronotum at caudal half glabrous, divided at the half. Scutellum scaly longitudinally, its apex and the postscutellum glabrous. Inner margin of the eye concave.

As compared with the genotype (types) stouter slightly, the sculpture of the scutellum coarser slightly, and the hind femur is slightly stouter; the outer palpus is darker, its terminal seta exceeding the part. No other differences are seen. The basal and cubital nervures form the usual ciliated V in the wings of both species.

Six females reared out from the larvae of *Promecatheca*, a leaf-miner of cocoanut fronds, September 28, 1936, Manus, Terr. New Guinea, B. A. O'Connor. Types in the foreign department of the Queensland Museum. *Pseudacrias aspidomorphae* nov.

This species may be known from the seventeen or eighteen other species of the genus as found in Australia by the following characteristics: Legs and scape concolorous; meson of the propodeon bicarinate only, the carinae separated at base; spicule normal; mandibles bidentate; median carinae of the propodeon diverging from base; funicle joints subequal to or exceeding the pedicel, at least the first oval or longer than wide; scutellum entirely sculptured; hind tibial spur elongate; of usual size; first funicle segment equal the pedicel; spicule bifurcate. As *quadricarinatus* as depicted in revised tables in respect to the parapsidal impression. Second segment of the abdomen two-thirds of the surface, nearly its distal half sculptured; first segment of the club equal to the pedicel. Close to *livida*.

The female has never been seen, the species being founded upon six males reared from the pupa of *Aspidomorpha* found upon a convolvulaceous plant at Brisbane, October 10th, 1929; the collector was Mr. A. R. Brimblecombe, as also the rearer.

#### EUPELMINAE.

*Eupelmus scarabaei* nov.

In my synopsis of the Australian species, this one runs to *lavoisieri* Girault, but differs in the following



particulars: The middle white part of the ovipositor is nearly twice the length of either black part; segments Nos. 2-3 of the funicle each slightly exceed the pedicel; hind tibiae metallic only above.

The palpi are black. Segments Nos. 2-4 of the funicle are slightly over twice longer than wide, No. 6 square. Teeth Nos. 2-3 of the mandible are formed of a wide truncation of a second tooth with an emargination. Scape slender. Metatarsus long, slightly exceeding Nos. 2 plus 3. Fore tibiae rather widely yellow apically upon the sides. Eyes naked. Spiracle of the abdomen at the apex of the penultimate segment. Middle tibial spur subequal to the ventral length of joint No. 1 of the second tarsus.

In the male the fore tibiae, the apices of the others, the tarsi and the knees are non-metallic. The male antennae have not been seen and this sex is considerably smaller. Aeneous. Two pairs reared from a weevil, "York Road Poison Plant Weevil," Perth, West Australia, L. J. Newman.

*Eupelmus mawsoni* Girault *solis* nov.

This species has the ovipositor not or barely extruded; and there are several varieties, one of which is described herewith. The species is paired with *incredibilis* Girault, but that species has the second segment of the funicle equal to the pedicel.

The legs are entirely citrous or lemon colour except the fore and hind coxae, no traces of metallic; ovipositor brown widely at apex. The lateral ocelli are distinctly closer to the eye than to the median. The males are all blue except the middle of the sides of the fore tibiae, the base of the third tarsus and the fore tarsus for the most part. Scape compressed, a true ring-joint present, the club solid or unjointed, the first funicle segment a bit smaller than the rest, which are subequal to the pedicel and a bit longer than wide. Two males and one female from *Callitris*, Moreton Island, September 12, 1908, E. Jarvis.

#### PTEROMALIDAE.

*Muscideopsis lecanii* nov.

From the genotype: Segment No. 2 of the abdomen is over four-fifths of the surface; dorsal thorax coarsely reticulate (excluding propodeon), glabrous distad of the cross-furrow of the scutellum; abdomen dark red-brown or black suffused with reddish; flagellum dark brown, the

funicle segments Nos. 1 and 4 square (Nos. 2-3 smallest, somewhat wider than long, No. 5 largest, still somewhat wider than long). There is a weak, scanty tuft of longish hairs upon the base of the abdomen dorso-laterad, the second segment occupying practically the whole surface. Else the same but the venation pallid dusky. A female reared from *Lecanium persicae*, Perth, W. Australia, L. J. Newman.

## NATURE IN RELENTLESS MOOD.

By J. EDGAR YOUNG.

Some time ago it was suggested by one or two of our members that I might write a commentary in our journal on the results to our wild life of various phases of Queensland weather during the latter part of 1936 and early part of 1937.

As this may be useful as a record not merely of the weather, but of matters concerning our birds, fish and other life, I will endeavour to record briefly the incidents as well as I can with the information to hand.

In the latter half of 1936, owing to the comparatively poor wet season and following lack of winter rains of much value, it was quite natural that the country began more and more rapidly to feel the consequences in the drying up of grass and water, which caused increasing inconvenience to various forms of wild life, forced migration being necessary in some cases, and inevitable death in others.

I have two reports from Mrs. L. M. Mayo, one of our enthusiastic ornithologists, regarding Lake Clarendon, a newly created wild life sanctuary near Gatton.

The first is one regarding her visit in October, 1936, in which she says that the water of the lake—a shallow bed—had at that time greatly receded, and it was difficult to get near the birds in the centre, owing to the black, sticky mud left on the margin.

Amongst the birds seen, she mentions the following: Nine *Egretta alba*, many spurwing, plover with young chicks, many white headed stilts, several black swans, a pair of marsh terns, some black ducks, some white-eyed ducks, white-necked herons.

*Tringa glareola*, and what appeared to be sharp-tailed stints wading in the water.

In the paddock around the lake were some kookaburras and sacred kingfishers, noisy miners, nankeen kestrels, butcher birds, magpies, magpie larks, chestnut-crowned babblers, crows, sordid wood swallows, starlings, welcome swallows, also greenies and rosella parrots.

It is possible that the numbers of birds listed were greater than would usually be the case owing to the general scarcity of water.

The lake was again visited early in February, 1937, when not a drop of water was to be seen. On the dried mud of the lake lay the carcasses of cattle, and only a couple of pairs of spur-winged plovers remained where a few weeks before so many score had been, and about 30 straw-necked ibis fed on the myriads of grasshoppers which now infested the paddock. Desolation reigned, for with these exceptions, the lake bed and paddock were bare of wading and forest birds. Similar scenes were to be found in a number of other places, but the above will serve as a typical example.

In the Logan River, at the pumping station near Beaudesert, the water had dried up to such an extent that a large number of fish died in the heated water ("Courier-Mail," Brisbane, about January 23rd, 1937).

I received the following information from Mr. C. Fenton, of the pumping station:—"The date on which the fish died was January 21st, 1937. The water was running and was from 1½ inches to 12 inches deep (readings taken daily).

There were mullet and catfish to 9 inches long, and eels to 30 inches long, and any fish that got into the shallower water that day surely died, but those in deeper water survived."

Again on 26th and 27th January, as reported in "Conrier-Mail" with photographs, hundreds of mullet were floating dead in the shallow water of the partly-dried up Nudgee Lagoon, near Brisbane, while many others floated gasping in the over-heated water. Many fish weighed up to 3 lbs. and hundreds less. An insanitary condition was feared by residents.

As the rain did not come for a week or two, there was probably little left of either water or fish by that time.

Turning from birds and fishes to plants, it may be reported that in November, 1936, the beautiful imported pest plant, the water hyacinth, (*Eichhornia speciosa*) had, owing to the lack of floods or freshes to clear it out, been

increasing until it had formed immense masses in the upper reaches of the Bremer River, a tributary of the Brisbane, and completely blocked navigation. It is said to be an ill wind that does nobody any good, for the local farmers who were now very badly off for fodder for their stock, commenced to reeover this river pest and carted it away to feed their cows.

The Harbours and Rivers Department now took a hand, endeavouring to clear the way for navigation, and at the same time assist the farmers. The hyacinth was removed to the bank by machinery, whence it was quickly carted away.

The "Mourilyan" was towed as far as possible, and then warped further, until she was completely stopped, and operated from her then position.

In February, 1937, another report tells us that owing to the drought, the salt water penetrated further up the river, with the result that in such places the hyacinth died, and at the same time erabs and salt-water fish had appeared in the upper reaches of the Brisbane and Bremer in the now brackish waters.

Our Museum ichthyologist, Mr. T. Marshall, says that sea-fish sometimes penetrate to the fresh water to rid themselves of parasites such as sea lice.

Later on, in mid-March, are accounts of heavy rains causing river freshes, which carried large quantities of the hyacinth down the river.

Photographs of the flood water and hyacinth appeared in the local Press, also of the first boat to reach Ipswich for twelve months.

So at last the conditions became more normal; rivers and lakes were filled, and the remaining wild life was enabled to recuperate, which it does in most remarkable fashion if not too severely damaged.

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THE ORIGIN OF THE ELECTRIC POTENTIALS OF  
ORGANISMS IN IRON: ELECTRO-MAGNETIC  
PHENOMENA AS THE COMMON BASIS OF THE  
PHYSICAL SCIENCES AND OF THE LIFE  
SCIENCES.

The above is the title of a paper and is the seventh of a series by Mr. W. D. Francis, of Brisbane, dealing with the functions of iron in the generation and maintenance of life. The paper, like some of the earlier ones, has been published privately by the author. An electric and magnetic interpretation of chromosome movements is put forward on the basis of the spiral structure of chromosomes and their similarity to the short solenoids of experimental physics. The author concludes that function and structure in the organic world are extensions of force and matter in the inorganic world. It is pleasant to note that this extremely important biological work linking the inorganic with the organic world is receiving some attention abroad. Our best wishes go out to the author for the successful continuance of his experiments.

LIFE HISTORY OF HEMIODOECUS VEITCHI

(Family Peloridiidae).

A paper of considerable interest to Australian naturalists was published in the "Annals and Magazine of Natural History" of May, 1937, on the above subject by Messrs. I. W. Helmsing and W. E. China. The insect is one of the small family Peloridiidae, which contains three genera, most of the species very imperfectly known. The present species was first discovered in Australia by Mr. H. Hacker, and named by him after Mr. R. Veitch. In October, 1933, Mr. I. W. Helmsing, who had illustrated Mr. Hacker's description of *Hemiodoccus veitchi*, was spending his vacation in the MacPherson Range studying bird life. Finding himself in the neighbourhood of the Antarctic Beeches (*Nothofagus Moorei*), he was tempted to search for *Hemiodoccus*, and was successful in capturing 17 specimens in twenty minutes. Further specimens were collected later, including males and nymphs, which had not previously been known. The paper deals exhaustively with the life-history of the insect, and is copiously illustrated by excellent photographs and line and wash drawings.

# THE QUEENSLAND NATURALIST

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB  
AND NATURE-LOVERS' LEAGUE

VOL. X

MAY 1938

No. 5

## PROCEEDINGS.

ANNUAL MEETING, MONDAY, 21st FEBRUARY, 1938.—The chair was occupied by the President, Dr. W. H. Bryan, and 44 members were present.

The Annual Report on the work of the Club for 1937 was read by the Hon. Secretary, Miss E. E. Baird. A report by the Hon. Librarian, Mrs. G. L. Jackson, showed that the Library was making good progress and that the books and periodicals were borrowed in fair numbers by the members.

The audited statement read by the Hon. Treasurer, Miss H. Clarke, showed a credit balance of £86/6/8.

Office-bearers were elected for 1938 as set out on the inner page of the front cover.

An address by the retiring President, Dr. W. H. Bryan, "Pebbles from my Garden Path," was read. The lecture was illustrated by a model of the Brisbane River made by Mr. Elliott Bolland and by various samples of pebbles and gravels.

Exhibits were tabled by Mr. H. E. Young—Bark of Bunya Pine (*Araucaria Bidwillii*) showing marks representing probable axe marks made by aborigines for climbing; Mr. K. Jackson—Samples of aboriginal grinding stone, chips and shells from a kitchen midden; Miss Walsh—Photographs of volcanic activity in Rabaul; Miss Williams—Flower of native passion vine (*Passiflora aurantiaca*).

EVENING MEETING, MONDAY, MARCH 21st, 1938.—The President, Dr. D. A. Herbert, occupied the chair, and 30 members were present.

The business of the meeting comprised two short lectures, one by Mr. A. Brimblecombe on Important Insect Pests of Queensland Forests, and the other by Mr. H. E. Young on Fungus and Allied Pests of Queensland Forests.

Exhibits were tabled by Mr. H. Tryon—A recently introduced destructive insect (*Pseudococcus virgatus*); by Mr. K. Jackson—Stone axes from Cooper's Creek, Western Queensland; by Dr. W. H. Bryan—Fossils from Toolburra collected by Mr. C. Dornbusch; and Dr. D. A. Herbert—Pearls found in freshwater mussels.

**QUEENSLAND NATURALISTS' CLUB.****ANNUAL REPORT, 1937.**

The Council of the Queensland Naturalists' Club submits the 32nd Annual Report of the work of the Club.

**MEETINGS.**—Ten monthly meetings, a special meeting, nine field excursions and ten Council meetings were held.

Attendance at Council meetings was as follows:—Dr. Bryan 7, Mr. J. E. Young 4, Dr. Herbert 6, Mr. Jackson 7, Miss Baird 10, Miss Clarke 8, Mrs. Jackson 9, Dr. Marks 9, Mr. Barker 9, Mr. Jack 9, Mr. White 7, Mr. Sanderson 5, Mr. H. E. Young 6.

The attendance at monthly meetings was good, the average being 42. Interesting and instructive lectures have been given by members and visitors. The Lecturers included Dr. Herbert, Miss Wigan, Messrs. Barker, King, Freeman and Nebe.

Exhibits with interesting comments have been tabled by many members. To try to interest members more closely in the study of the Natural History of Queensland, lecturettes were given on "Fungi" by Dr. D. A. Herbert, "Queensland Ferns" by Miss Goy, "Sedges and Grasses" by Mr. Blake, "Minerals" by Dr. Bryan, "Sea Shells" by Dr. Whitehouse, and "Bird Observing" by Mr. Barker.

At a special meeting held on April 1st, Mr. G. H. H. Tait, M.A., of the American Museum of Natural History, New York, gave a most interesting account of the work of the second Arehbold Expedition to Papua.

No Wildflower Show was held this year.

Excursions have been held to Enoggera and Gold Creek Waterworks, Mt. Mee, Nursery Road, Castra, Beechmere, one of the Glass Houses (Tibrogargan), and Lone Pine. The Easter Camp was held at Canungra. Thanks are again due to Mr. Frankling who, for the third time, has permitted the camp to be held on his property. Thirty-seven members were present.

**MEMBERSHIP.**—The membership now stands at 135, of whom 7 are honorary members, 98 town and 30 country members. Resignations have been accepted from 7 members, and 13 have been elected.

**"THE NATURALIST."**—Two issues of the journal have been published this year.

**"NATURE LOVERS' LEAGUE."**—At the Museum, many children have been interested and signed the Nature Lovers' Pledge.

LIBRARY.—The Hon. Librarian (Mrs. G. L. Jackson) reports as follows:—

The Library has been fairly well patronised by members during the year, about 60 books and 170 magazines being lent.

There is, as usual, rather a big discrepancy between the number of books and magazines lent, accounted for, no doubt, by the fact that it is some years since books were purchased by the Club, and the only new additions have been those presented by members. I would suggest that a selection of suitable volumes be purchased.

Thanks are extended to those members who have so generously donated books and magazines to the Library.

FINANCE.—Appended hereto is a Financial Statement, showing that at the end of the year the Club had a credit balance of £86/6/8.

W. H. BRYAN, President.

E. E. BAIRD, Hon. Secretary.

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### QUEENSLAND FIELD NATURALISTS' CLUB.

PRESIDENTIAL ADDRESS BY W. H. BRYAN,  
M.C., D.Sc.

(Delivered February 21st, 1938)

Ladies and Gentlemen,

As the name of our Club indicates, our interests and activities lie in the field rather than in the library or in the laboratory. But field work does not necessarily connote distant journeys. Our field commences right at our doorstep. It is good to remind ourselves of this from time to time, and to remember, when the distant hills look attractively green, that quiet, systematic work on the things that lie to hand may give more valuable results than more spectacular ventures farther afield. If you are in agreement with me on these points, then I claim that it is permissible for me to talk to you about

#### **"The Pebbles on my Garden Path."**

At the outset I should confess that these pebbles are not in their natural habitat. They have been carted there from the Brisbane River, and it might be argued that a natural historian should not concern himself with such an obviously unnatural deposit. But I hope to be able to convince you that although they are not *in situ naturale*, they may form a convenient starting point for an adventure into natural history—as indeed the path to the front gate forms the mild beginning of most adventures.



At first glance the path gives a false impression of uninteresting uniformity. This is due in part to the high percentage of dark pebbles and the consequent grey appearance of the whole, and in part to the fact that, before it was sold, the gravel was passed through screens to ensure a rough uniformity in size.

But a closer examination showed a wide variety within this apparent sameness, and I was able to recognise many old friends among the pebbles, reminders of numerous geological excursions to different parts of South-Eastern Queensland.

Perhaps the most striking, although far from the commonest pebbles, are the jaspers. In contrast to most of their fellows, these are red or reddish brown in colour. Nor are they nearly so well rounded and polished as the other pebbles, and it is these exceptional features in colour and form that attract the eye.

Some of these jaspers, when examined with the lens, show numerous minute spherical spots. Each of these represents the skeleton of a radiolarian, and they are so plentiful in some cases that more than a million are contained in a cubic inch of the jasper. And yet so small are these primitive organisms that they are by no means crowded.

Far more numerous, if individually less interesting than the jaspers, are the cherts. These are for the most part dark grey or black in colour, and give to the gravel its characteristic grey colour. They are almost without exception well rounded, and often are highly polished.

Forming an interesting contrast with the black cherts, although less abundant, are cream quartzites. These, together with colourless and pink pebbles of quartz, form the majority of the lighter coloured constituents.

Banded quartzites are also found, but these are usually flatter than the other pebbles and less rounded than most.

One of the commonest groups is made up of andesites. These, although they vary very considerably in colour and texture, have so many other characteristics in common that they fall naturally into an easily recognised group. Perhaps the most striking feature uniting all these andesites is their porphyritic character due to the presence of phenocrysts of plagioclase that have weathered into conspicuous white crystals. Again, the andesites, although rounded like the other pebbles, differ from them in lacking their smooth polish and having

instead a rough, somewhat pitted appearance.

In addition to the above types, all of which are plentiful enough, one sees here and there pebbles of an exceptional kind. The more interesting of these rarities that I have noticed, is an angular fragment of chalcedony and a highly polished specimen of fossil wood.

From the petrological point of view, we see that the pebbles display considerable variety, and it is a reasonable assumption that they originally had a wide distribution. But in spite of such patent diversity, the pebbles constituting the gravel have one all-important factor in common: they are all exceptionally durable. They have all undergone the ordeal by water and have emerged battered and worn but triumphant.

The factors necessary to ensure that durability without which a pebble would soon cease to exist are hardness, or toughness, or insolubility, or some combination of these three. Any rock which is soft or easily broken or readily dissolved is unsuitable for pebble formation, and is abraded, broken, disintegrated or dissolved before it has travelled very far along the bed of the stream. As it happens, the most insoluble of the common rock materials is silica ( $\text{SiO}_2$ ). Not only that, but silica in its several mineral forms is also the hardest of such materials. It is to be expected, therefore, that siliceous pebbles of one kind and another should be prominent members of most gravels, and this expectation is heightened by the knowledge that silica is the commonest material on the crust of the earth.

We have here a simple explanation of the preponderance in the gravel path of such substances as cherts, jaspers, and quartzites, all of which are very highly siliceous.

An explanation of the common presence of andesites is somewhat different. These rocks are not highly siliceous, but on the other hand they are so extremely tough that for many years andesites (or blue metal, as they were commonly called) have been selected by engineers for use in making macadam roads. The durability of these rocks is largely due to the toughness of the mineral hornblende, which is one of their chief constituents. The other mineral (plagioclase feldspar) is not nearly so tough, and it is this difference that causes the andesitic pebbles to have a somewhat rough, pitted appearance, quite distinct from the uniform smoothness of the cherts.

Having considered very briefly the chief character-

istics of the pebbles making up the path, let us now go back one step in the history of the gravel and examine it as it emerges from the bed of the Brisbane River.

Through the courtesy of Messrs. William Collin and Sons, and their Supervisor, Mr. C. J. Voller, I have been able to inspect samples of the gravel as it is dredged from the river, and to compare them with the gravel on which the above generalisations have been based. The "raw material" consists of an admixture ranging from coarse boulders twelve inches in diameter to the finest mud. But the extreme members of the series constitute only a very small part of the whole, the bulk of the material being made up of intermediate gravels and sands. After it has been unloaded from the barges, the occasional large boulders are removed by hand, the fine mud is washed away (and the product thereby cleansed) in a stream of water, and the remainder is separated by screens of suitable mesh into gravels of several grades of coarseness, "coarse sand" (which is, in fact, a very fine gravel), sand and fine sand. It was a medium grade of gravel cleansed and graded in this manner that found its way after a long and complicated history to my garden path. I was particularly interested to note that in spite of their artificial separation, this was clearly representative of the gravels as a whole. I did not notice any strange pebbles in the barges, and the proportions seemed much the same. It would seem that the quantitative separation of the pebbles did not bring about a qualitative separation, too.

Although occasional large loads have been brought from higher up the river, nearly all the gravel used in Brisbane has been obtained from the bed of the stream between Six-Mile Rocks and Seventeen-Mile Rocks. Tremendous quantities have been gathered from these eleven miles, and the reach below the Indooroopilly Bridge has been particularly prolific. Mr. Voller informs me that at the peak of production a few years ago as much as 3,250 cubic yards were removed by the several operating companies in a single week, and that an average week at present produces about half that amount. When it is added that this activity has been proceeding steadily for many years, one can realise what a stupendous figure the total must be, and one can readily understand that suitable gravel banks are becoming more and more difficult to find.

In the early days of the industry many of the banks were emergent, in the form of small islands, and it was

the custom to collect the gravel above river level by wheeling it in barrows across planks from island to barge. When this method was no longer possible, owing to the complete removal of the islands, recourse was had to the use of grab and clam type dredges which filled accompanying barges. (It is noteworthy that one of these craft, still called the "Gayundah," once constituted almost the entire Queensland naval fleet.)

More recently the practice has been introduced of combining the dredge and the barge into one quick-acting unit. These, on account of their draught, are unable to operate above the Seventeen-Mile Rocks. One result of this has been further to intensify the operations between that point and the city.

Let us now consider as far as we may the distribution of the gravels of the Brisbane River. I suppose a strict field naturalist, who wished to obtain information on this point, would don a diver's helmet and personally explore the bottom of the river, but I must confess that my enthusiasm for the cause was not quite as fervid as that. Instead I did the next best thing, and consulted Mr. D. Fison, the Engineer for Harbours and Rivers, whose knowledge of the bottom of the Brisbane River from Mt. Crosby to Moreton Bay must be unique.

As one might have anticipated, there is, on the whole, a decrease in the size of the pebbles constituting the gravels as one proceeds downstream. Thus at the Upper Shoal, below Ugly Gully, the boulders average about eight inches in diameter. Heavy gravels are commonly found between this point and Seventeen-Mile Rocks. From there to Six-Mile Rocks are the somewhat lighter gravels which are so valuable commercially. As we approach the city, the size of the pebbles becomes smaller, until in the neighbourhood of Victoria Bridge, the so-called "pea-gravel" is met with. This can be traced as far as the New Farm reach, which may be regarded as the lowest point of the stream in which pebbles are deposited. From there to the mouth of the river the bottom deposits are sands of varying coarseness and mud.

While this outline gives a rough idea of the general decrease in the average size of the pebbles encountered as one proceeds downstream, I do not wish you to think that the change is uniform and regular, far from it. There is an apparently haphazard distribution of coarser and finer material in every reach of the stream, and indeed in nearly every individual bank, as is shown



clearly if one compares the logs of the many bores put down in the neighbourhood of the Grey Street and Story Bridges. Thus a dredge may have to move only a few yards in order to procure gravel of a different consistency or a higher proportion of sand. Mr. Fison cited one particularly interesting contrast in the bottom deposits. At the point known as The Race (the Moggill Ferry is close by), the river flows through a deposit of almost pure sand, while both above it and below at no great distance are heavy gravels. Again, Mr. Voller informs me that there is a bank of very large boulders near the right bank of the river, opposite the Indooroopilly Golf Links, that is almost in the heart of the area from which the commercial gravels are obtained.

One other point concerning distribution should be noted, namely, that the content of mud suddenly increases below the junction of the Bremer River with the main stream. This will not be surprising to those who have compared the pellucid waters of the Upper Brisbane with the dirty opacity of the tributary stream.

Now let us consider for a moment the depth of these deposits. Naturally, our knowledge of this aspect is most definite in that part of the river that flows through the city. As a result of the building of bridges, wharves and warehouses, a good deal of information has accumulated. Thus it is known that the piers of the Grey Street Bridge penetrate unconsolidated river deposits to a maximum depth of 105 feet below low water before encountering solid rock, while those of the Victoria Bridge extend nearly 90 feet to their foundations from the same datum. Similarly, in boring for foundations on which to rest the main southern pier of the Story Bridge at Kangaroo Point, incoherent semi-consolidated material was pierced to a depth of 133 feet below low water level before rock bottom was obtained. Such thicknesses seem to be normal for the river in this part of its course. Here and there the scour of the stream has been sufficiently strong to keep the bottom free from silt, and in these places a great depth of water is found. Thus at the sharp bend opposite the Botanic Gardens, near where the South Brisbane Coal Wharves stand, the river is 78 feet deep, while at the next sharp bend opposite Kangaroo Point, the rock bed is exposed nearly 100 feet below the river level.

With regard to the thickness of the deposits farther upstream, we have less definite information, but we do know that the central pier supporting the Indooroopilly

Railway Bridge penetrated thirty-five feet of sediments, the rock bottom lying 75 feet below the surface of the stream.\*

It might be thought that more information with regard to the thickness of these gravel deposits would be available through the activities of the commercial dredges, but, constructed as they are for relatively shallow dredging, mechanical difficulties and added cost have virtually confined their operations to depths within 30 feet of low water. Hence the majority of the gravel banks are abandoned before rock bottom has been reached.

Let us now inquire into the relationship of the Brisbane River gravels to the other features presented by the stream. In particular, let us endeavour to trace their development in the history of the river, and thus assign them to their proper place in the present stream regime.

Several facts go to show that gravels are not being deposited below the Seventeen-Mile Rocks as a normal activity at present, but that their accumulation is due almost entirely to occasional large floods. The normal deposit at present in these reaches is a river mud. This can be demonstrated from the facts, first that the dredges have to clear away a thickness of some 6 to 12 inches of mud before reaching the gravel deposits, and secondly, that when dredges return to examine the holes previously dredged in the hope that they may have been partially filled with new gravel, they find instead that the holes have been filled with river mud. Still another piece of evidence bearing on this point is that before they were removed by dredging, a number of the banks reached well above the normal surface of the river, and could only have been built up during heavy floods, when the river was much higher than usual. It would seem that normally the net effect of the alternation of somewhat sluggish ebb and flow separated by two periods of slack water is the gradual accumulation of a muddy sediment. Most of this almost certainly comes from upstream, but it is the considered opinion of Mr. Fison that sand banks such as that removed by dredging from the Botanic Gardens are replaced by mud banks built up from material derived from the bar at the mouth of the

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\*Since preparing this address, added information has come to hand as a result of the putting down of trial bores at the proposed site of the St. Lucia Bridge. These show that the sands and gravels extend to a maximum depth of 80 feet below low water.

river and brought upstream by the tide in times of drought.

During heavy floods the first effect would be the stripping and removal of these superficial mud deposits. This would be followed by modification of the underlying gravel banks. In some places they would be eroded, in others aggraded, according to vagaries in strength and direction of the currents in the flooded stream. But the algebraic sum of these changes would be a definite increase in the amount of gravel. As each flood subsided, a fresh deposit of mud would be smeared over the gravel banks, and this would gradually be added to during normal conditions.

To what extent the present stream may be regarded as strictly normal, and to what extent it has been influenced by human activities, such as deforestation, deepening and regularising the river for shipping purposes, and the removal of gravel, can only be guessed at, but Mr. Fison's observation recorded above suggests that the effect of man-made modifications may be far from trivial. In order that members may appreciate how different the lower reaches of the stream now are from their original state, I have brought here to-night a model of the Brisbane River from St. Lucia to the mouth prepared by Mr. Elliott Bolland, and based on the earliest systematic survey of the river bed.

If we wish to trace the history of our river back beyond these latest man-made changes, we must have recourse to physiographic inferences, and as Dr. Marks has pointed out in an address to you on a similar occasion to this, physiographic inferences are apt to be misleading. But at least we can, in this case, deduce a story in which the several episodes are mutually consistent, and a story that is in close agreement with the geological history of Eastern Australia as a whole.

It would seem that the Brisbane River was once a sluggish stream similar in many respects to that of to-day, and following a course almost identical with its present sinuous curves, but in those distant days it was a hundred or more feet above its present level. Later, as a result of some influence that may be only guessed at, the torpid stream became rejuvenated and began to cut downward into its bed with renewed energy. Gradually, the bed was carved deeper and deeper between its rock walls until instead of being a hundred feet *above*, it was a hundred feet *below* its present level. Then a reversal took place. The whole eastern coast of Australia

was inundated by an ever rising sea, possibly due to the melting of the extensive Antarctic ice cap which followed the Great Ice Age. As a result of this rise in sea level, the Brisbane River, among others, was invaded by sea water to an ever increasing depth. The velocity of the stream was slackened and its energy sapped. No longer could it scour out and deepen its bed. Instead it began to fill its channel with the rock detritus that it could no longer carry to the sea. And it was in this way that the gravel deposits we are considering came into being.

This great and important submergence was succeeded by, and its effects in small part counteracted by, a succeeding movement of emergence, as a result of which sea level appears to have been lowered several feet. This brings us to that point in the river's history represented by Mr. Bolland's model, the subsequent modifications being due not to nature, but to various activities of man.

Having dealt in rather sketchy outline with the nature of the gravel deposits, their distribution and their place in the history of the Brisbane River, let us now endeavour to trace the pebbles to their place of origin.

A practice common among geologists is the attempt, from a consideration of the nature of a conglomerate, to interpret the geological structure of the hinterland from which it was derived. The interpretation is based on a study of the assemblage of pebbles in the conglomerate, the proportions of different rock types represented in these pebbles, and their relative sizes and degrees of rounding. The value of the inferences based upon such practice is doubtful. In some cases they may approximate the truth very closely, in others they may tell only part of the complete story, while in others they may be distinctly misleading.

It might be of interest in our case, knowing as we do *both* the content of the gravel *and* the nature of the hinterland from which it was derived, to match the inferences against the facts and measure their degree of correspondence.

In the first place let us recollect the assemblage of pebbles present in the river gravel. Earlier in this address, I spoke of recognising many old friends among the pebbles, but just as notable are the friends who are conspicuous by their absence. Thus, not one pebble of basalt is to be seen, although the main stream and most of its tributaries head in basaltic tablelands. Again, although the Stanley River flows through several areas of



granitic and allied plutonic rocks, there is no hint of this.

Could one reconstruct the extensive shales and sandstones of the Esk Series, the Ipswich Series, the Bundamba Series and the Walloon Series by an examination of the sands associated with the pebbles of our gravel? I am sure one could not. In a search through several tons of pebbles, I have discovered only one fragment of carbonaceous shale—sole representative of several large coalfields. Could one visualise the great thickness of Bunya Phyllites from those occasional schistose fragments in the gravel which, having been reinforced by quartz veins, are sufficiently durable to form pebbles? I think not. Almost inevitably the softer, less coherent rocks would be under-estimated and misunderstood, and conversely, the hard and resistant rocks would be assigned too great a thickness and too extensive an area.

A study of the several degrees of rounding of the different pebbles would lead to similar half truths. Thus the relative angularity of the jasper pebbles points, quite rightly, to a not-distant origin. But it would be quite wrong to infer that the other more rounded pebbles come from a more remote source. Consider the position on the river a few miles above Mount Crosby. At this point the Fernvale Series, on the left bank, is shedding sharply angular fragments of jasper, while on the opposite bank the basal conglomerates of the Ipswich Series are providing the river with well-rounded pebbles ready-made.

And yet in spite of such confusing things as these, the assemblage of pebbles found in the Brisbane River, or in any other river, has an individuality, a character, of its own, dependent on the history of the stream and the geological nature of the country drained by it.

We are in a position to make a very strict test of this principle in the case of our own river.

One of our field excursions last year was to Lone Pine, on the left bank of the Brisbane River. I was so interested in the geology of the spot, as seen on that occasion, that I returned there a few days ago. There I stood on a deposit of gravel some fifty feet above the present river, and watched a dredge at work bringing up other gravel from the river bottom. Surely one might be forgiven for thinking that two gravels so closely adjacent must be very similar, in spite of any difference in age or origin. But such is not the case. The Lone Pine Gravel (which is now mentioned for the first time

in geological literature) is quite distinct from the Brisbane River Gravel, although they lie almost side by side. There are, it is true, some points of resemblance. For example, jaspers and quartzites occur in each, but the similarities are altogether outweighed by the differences. In the first place, the Lone Pine Gravel is much coarser, many boulders being from six inches to twelve inches in diameter, and some measuring as much as thirty inches through. But this is the least important of the differences. Of far more moment are the facts that the two suites of pebbles are in general quite different, and that in particular, certain very striking and prominent types in the Brisbane gravel are missing from the Lone Pine deposit, and *vice versa*. Thus one of the most striking groups of pebbles in the Brisbane gravel are the porphyritic andesites mentioned in the earlier part of this address. These are common enough in the lower reaches, and as one follows the river up towards its source, they become more and more prominent until at the point where the Monsildale Creek enters the river, they are in an overwhelming preponderance. During a long and careful search I was unable to find one representative of these pebbles in the Lone Pine Gravel.

On the other hand, the most arresting feature in the Lone Pine deposit is the presence of large boulders of quartzite rounded and polished and with curious embayments or dimples. The quartzite itself is of an unusual type, and is known to Queensland geologists by the homely name of "Billy." Its occurrence in the curiously shaped boulders to which reference has just been made renders it doubly remarkable and equally conspicuous. These boulders are quite unrepresented in the gravels of the Brisbane River, although in addition to the Lone Pine occurrence, they have been found by Professor Skertchly in Sherwood (in what he whimsically termed The Higeldy Gravels), and by Dr. Marks at Eagle Farm.

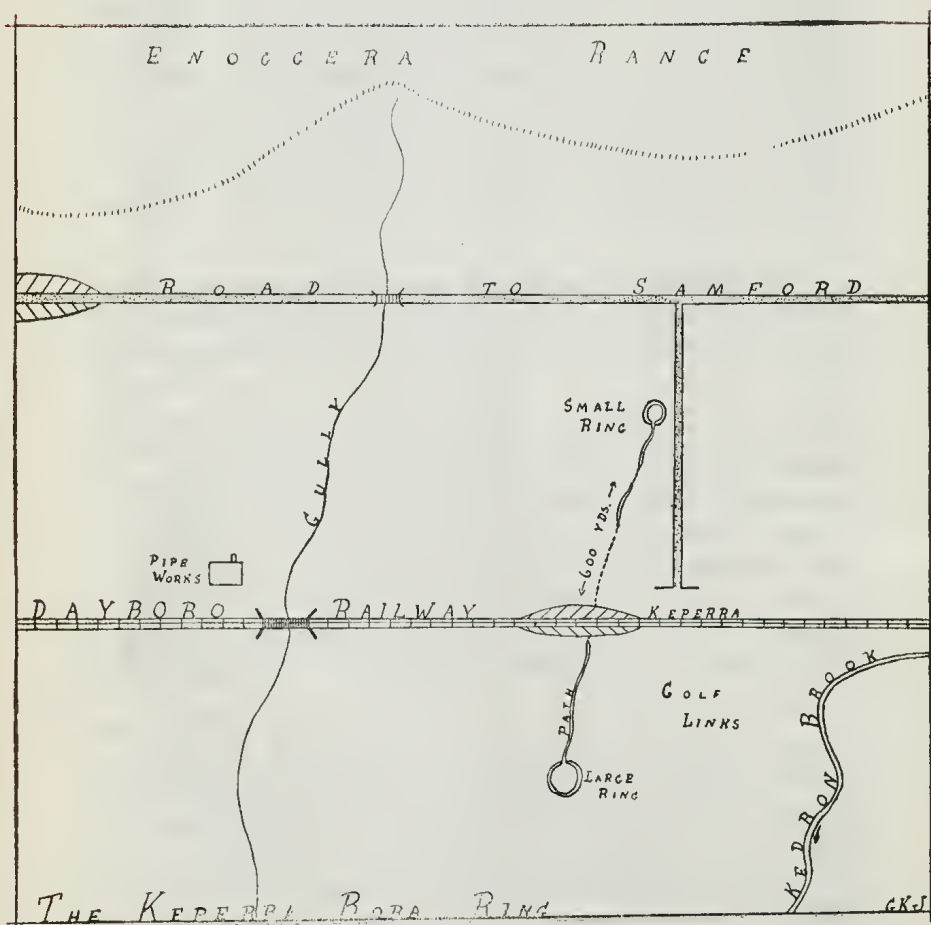
We may conclude from these facts, I think, that while the gravels of the Brisbane River, as exemplified by the pebbles of my garden path, are not truly representative of the area drained by the river, they nevertheless form a distinctive assemblage that is unlikely to be duplicated in Queensland or indeed anywhere else in the world.

### THE KEPERRA BORA RING

In dealing with a subject, such as the Keperra Bora Ring, one might do well to say a word or two concerning the aboriginals, who made and used these grounds for initiation of their young men, into the state of manhood.

The Turubul, or Brisbane tribe, applied to these rings the name "kippa," meaning young man, and they were known locally as kippa rings. The word Keperra is probably derived from this source.

The kippa ground comprises two rings. A large one, and a small one, connected originally by a well defined



pathway. The object of the raised circles was to enable the initiates to lie with their heads on the crest of the mound, and their feet pointing towards the fire in the centre of the circle.

The large ring is situated near the crest of a hill, on the northern side of the railway line, and within a short distance of the Ferny Grove Golf Links. Its circumference is 247 feet, while its diameter is 71 feet.

The centre has been hollowed out, while an outside mound of  $12\frac{1}{2}$  feet in diameter has been raised above the level of the surrounding country. This mound is broken by a gap nine feet wide on the southern side, where the pathway leads off to the smaller ground.

The pathway, although it leads roughly in a S.S.W. direction is by no means straight, owing probably to the interference of large granite boulders, and trees which originally clothed the spot. In its best parts, it, too, is hollowed out in the centre with a slight mound on either side.

On nearing the railway cutting, it suddenly peters out, and on the opposite side of the line is again totally obliterated. This leads to the assumption that the railway was built right through the centre of the ring. However, it seems unlikely that these people would build one ring on a hill crest, and the other in a depression. The more natural course seems for each circle to occupy a respective summit in such undulating country.

Continuing roughly in a S.S.W. direction, one is again rewarded by isolated signs of the pathway, which eventually link together, and lead to the smaller ring, covering a distance of about 500 or 600 yards.

This one is in very bad condition, and might easily be passed without anything exceptional being noticed. It is roughly half the size of the former, being  $116\frac{1}{2}$  feet in circumference and 37 feet in diameter. The diameter of the mound itself is 7 feet, while the gap for the entrance of the pathway is 5 feet.

Once the spirit of these grounds promoted mystery and awe in the hearts of their black guardians.

Now it is still! While each drop of rain melts its contours to the surface of its mother earth, and leaves the past to misty silence and forgetfulness.

G. K. JACKSON.



## A NEW FERN RECORD FOR QUEENSLAND.

(By D. A. Goy, Botanic Museum and Herbarium,  
Brisbane.)

On a recent collecting trip to North Queensland, Mr. C. T. White (Government Botanist) was handed specimens of a fern by Mr. M. J. Manski. Mr. Manski is a member of the North Queensland Naturalists' Club and is keenly interested in ferns. These particular specimens were collected on Jackson's Creek, Happy Valley, Babinda, by Mr. R. Giddens. The plant was not previously known to occur in Australia, but was recognised by Mr. White as a common New Guinea one. On examination it proved to be *Diplazium cordifolium* Bl., formerly known as *Asplenium integrifolium* Mett., also as *Anisogonium cordifolium* Bedd. The fern is widely spread over Malesia, the Philippine Islands, Polynesia, Madagascar and tropical Africa, and it is therefore not surprising to find it growing naturally in tropical Queensland.

*Diplazium cordifolium* is easily distinguished from all other Australian representatives of the genus, being the only species with undivided fronds. These are densely tufted on the rhizome, with robust stipes up to about 35 cm. long. The fronds on the specimen illustrated (which is a New Guinea one, the only Queensland specimens available being somewhat crushed and torn) measured from 14-24 cm. long and 4-6 cm. broad; but the specimens from Babinda measured 25-26 cm. long and 9-10 cm. broad, were oblong-lanceolate in shape, cordate at the base, acuminate towards the apex, and coriaceous in texture. In some plants 1-2 pairs of lateral pinnae may be developed below the usual one, but all the Queensland specimens had simple fronds. The veins anastomose towards the outer part of the frond and bear sori from the midrib to the margin or nearly so.



*Diplazium cordifolium* Bl.



## BIRD NOTES FROM BINNA BURRA,

## LAMINGTON NATIONAL PARK

(By MRS. COMRIE-SMITH.)

In October, 1937, several Queensland and Victorian members of the R.A.O.U. held a camp-out in the Lamington National Park, and the following notes are taken from my field notebook of that time.

Near the main track, through the scrub or rain forest, I found a nest of *Gerygone richmondi* hanging from a lawyer vine. It was being built and was very long and narrow, with a long tail, and the birds were carrying tiny scraps of lichen and sticking them on. A week later the nest was much bulkier. They appear to build the whole length of the back first, including the tail; they then add the actual hollow part of the nest, finishing off with the hood and the lining, which takes a considerable time to complete to their satisfaction.

I watched one of them going into the nearly completed nest several times and while she was busy inside the whole nest shook and trembled violently with her exertions.

The nest of the yellow throated scrub-wren (*Sericornis lathamii*) situated near but just below the other is the greatest contrast, very bulky and untidy and built of dark materials such as fibrous roots, so that it looks in the shadow, almost black. This bird also seemed to be finishing the lining of her nest; she went in three times in as many minutes and each time she said "tchut."

Further along the track I watched a pair of yellow robins (*Eopsaltria chrysorrhoa*) flying back and forth across the path at a rather open sunny spot. One alighted on a big log in the sun and called gently, and shivered her wings, and her mate came and fed her. I thought there must be a nest near, though it seemed hopeless to look for it in that thick scrub. However, I noticed that the birds crossed the tracks nearly always at the same spot, so I crept nearer and watched carefully, and all at once saw one of them fly on to a nest and feed young ones. The nest was on top of a leaf of lawyer vine about five feet up and on the next leaf below was the remnant of an old nest. The nest was a beautiful one decorated with bits of white lichen, and in it were three half-fledged young ones.

While watching this, I heard some lewin honeyeaters (*Meliphaga lewini*) scolding excitedly, and suddenly, with a great swish and rush, a large goanna (*Varanus varius*) went up a small tree like a steam engine! He went up the



tree at a great pace for the first 20 feet or so, and then more slowly, and as he did not see me at first, he was in full view. The lewins were joined by a pair of rufous fantails (*Rhipidura rufifrons*), some brown warblers, two scrub wrens (*Sericornis frontalis*) and the robins, and what a noise they made! The little rufous fantails were the bravest, but even they kept at a very safe distance from the ugly creature who turned his head and darted out his tongue, but otherwise clung as tightly to the tree as if growing there.

Then another bird came up, a female rifle bird (*Ptiloris paradiseus*) with dark markings and long curved bill, and the excitement gradually died away. Just as I was moving off, on to the sunny log near me lighted a beautiful little green backed bird with a barred breast—a golden bronze cuckoo (*Lamprococcyx plagusus*) shining brightly in the sun.

#### THE SATIN BOWER BIRD.

One day I found the bower of a satin bower bird (*Ptilonorhynchus violaceus*); it was in an opening among thick bushes, and was very neatly made, the sticks meeting in an arch about nine inches high. It was about seven inches through, and it had a carpet of dried grass and small twigs spread in front of it, and laid on this were five heads of the blue flower of the wild tobacco, and a dozen or more of the bright blue feathers from the wing of the crimson rosella (*Platycerus elegans*).

At this time there were great numbers of parrots to be seen, mainly crimson rosellas and king parrots (*Aprosmictus scapularis*) with a few Blue Mountains among them. They look most lovely seen at close quarters feeding on wild raspberries and the berries of the wild tobacco. The bower birds and cat-birds (*Ailuroedus melanotus*) feed with them, and to see a blue-black satin bower bird with a big black raspberry in its bill is a common but beautiful sight.

There are a few regent bower birds (*Sericulus chrysocephalus*) too. I stood at the top of a gentle slope covered with wild tobacco bushes which were alive with dozens of these parrots and bower birds. The leaves of the bushes are of a soft velvety, almost whitish green, and the brilliant reds, blues, and greens of the birds were shown up by this neutral background, especially the black velvet and gold of the regent birds. I was so near to some of them that I could see the colour of their eyes.

## A NEW BOOK ON QUEENSLAND BOTANY

**PRINCIPLES OF BOTANY FOR QUEENSLAND  
FARMERS**

By C. T. White, Government Botanist

Issued by Direction of the Hon. F. W. Bulcock,  
Minister for Agriculture and Stock

Government Printer. Brisbane, pp. 232, plates 103,  
price 2/-.

When a series of articles on "Principles of Botany for Queensland Farmers" were appearing in the *Agricultural Journal* last year, numerous requests were received to know when they would appear in book form. They have now been issued in the form of a book, and are available at the price of two shillings per copy.

Botany is one of the most fascinating and at the same time useful of the natural sciences, a little knowledge of which makes every place of interest. It also helps towards a proper understanding of the needs of plants.

The present work should go far in assisting Queenslanders towards a knowledge and proper appreciation of the rich native flora of the State. The book is divided into five parts. The first part deals with the Morphology or the study of the form and external appearances of plants; the second with the Anatomy or the internal structure of the plant organs; the third part with Physiology or the study of the various life processes of the plant, particularly the two great factors of nutrition and reproduction; the fourth with the classification of plants or their arrangement into groups according to their natural affinities, and the fifth with distribution and the various plant associations of Queensland.

The book is profusely illustrated, the illustrations being taken from common Queensland plants, either native or cultivated. It is obtainable from the Under Secretary, Department of Agriculture and Stock (price 2/-). It is the standard textbook set for the examination for the appointment of Inspectors under the Diseases in Plants Acts.

# QUEENSLAND NATURALISTS' CLUB

## Annual Receipts and Expenditure year ending December 31st, 1937.

| RECEIPTS                                                    |      |      | EXPENDITURE                                                              |      |      |
|-------------------------------------------------------------|------|------|--------------------------------------------------------------------------|------|------|
|                                                             | £    | s d  |                                                                          | £    | s d  |
| Balance forward from 1936 .. .. .                           | 94   | 7 11 | Rent, Women's Club .. .. .                                               | 12   | 10 0 |
| Members' Subscriptions .. .. .                              | 51   | 10 0 | Insurance .. .. .                                                        | 0    | 5 6  |
| Nature Lovers' Certificates, to December 31st, 1937 .. .. . | 0    | 5 2  | Telephone .. .. .                                                        | 4    | 7 6  |
| Lantern Hire .. .. .                                        | 0    | 10 6 | Petty Cash .. .. .                                                       | 11   | 0 0  |
| Tent Hire .. .. .                                           | 1    | 0 0  | Barker's Bookstores (Subs., Magazines)                                   | 1    | 10 0 |
| Sales of Queensland Naturalist .. .. .                      | 2    | 12 0 | Clark & Mackay (Printing Naturalist)                                     | 32   | 11 4 |
| Interest on Account at Bank .. .. .                         | 1    | 17 1 | Walker, C. J. (Wrappers, Letterheads)                                    | 2    | 10 6 |
| Balance, Easter Camp .. .. .                                | 3    | 5 7  | N. Bell & Co. Pty. Ltd. (Electric Bulb)                                  | 1    | 9 9  |
| Discount Allowed (Barker's A/c.) .. .. .                    | 0    | 3 0  | Lowther & Co. (Re-lettering Printing on monument—Prof. Skerchly's grave) | 3    | 0 0  |
|                                                             |      |      | Balance in Bank forward .. .. .                                          | 86   | 6 8  |
|                                                             | £155 | 11 3 |                                                                          | £155 | 11 3 |

Signed—

H. CLARKE, Hon. Treasurer.

C. W. HOLLAND, Hon. Auditor.

# THE QUEENSLAND NATURALIST

JOURNAL OF THE QUEENSLAND NATURALISTS' CLUB  
AND NATURE-LOVERS' LEAGUE

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## PROCEEDINGS.

EVENING MEETING, 18th April, 1938.—As the usual monthly meeting date fell on Easter Monday, no meeting was held. During the Easter encampment, however, meetings were held during the evenings to discuss the various natural history features of the district, and specimens were exhibited.

EVENING MEETING, 16th May, 1938.—The President, Dr. D. A. Herbert, occupied the chair, and forty-seven members were present. Reports on the Easter Excursion to Coolangatta were given by Professor H. C. Richards (Geology), Mr. S. T. Blake, and Mr. C. T. White (Botany), Mr. F. A. Perkins (Insects), and Mr. J. E. Young (Birds). Reports on the Excursion to Holt's Hill on Labour Day were given by Dr. D. A. Herbert (Botany), and Mr. N. Jack (Birds). Miss Cock showed a specimen of a case of Leaf-Cutting Bee, and flower of a rose showing proliferation, one flower growing from another.

EVENING MEETING, 20th June, 1938.—The President, Dr. D. A. Herbert, occupied the chair. The principal business of the meeting was a lecture by Mr. C. T. White—"Botanising on the Overland Route from Brisbane to Cairns." Reports on the excursion to Whiteside on the King's Birthday were given by Dr. D. A. Herbert (Botany), Dr. E. O. Marks (Geology), Mr. N. G. Jack (Birds). Mr. Ken Jackson tabled specimens from Whiteside, consisting of a Mat Rush (*Xerotes longifolia*), which was used by the natives for making dilly-bags, and seeds of the Moreton Bay Chestnut (*Castanospermum*), used by the aborigines for food. Mr. H. Tryon tabled fragments of the tree, the Red Stringy Bark, (*Eucalyptus resinifera*), which had been cut down at Dutton Park. Dr. E. O. Marks reported that the sign had been removed from the Bora Ring at Nudgee. It was decided to refer the matter to the Council of the Society for action.



## GEOLOGY OF THE COOLUM AREA

(By Professor H. C. Richards, D.Sc.)

## GENERAL SUMMARY

Some thirty-two years ago, Dr. H. I. Jensen, as a Linnean MacLeay Fellow, worked on the area and published his results in the Proceedings of that Society for 1906, Part I, in a paper dealing with the "Geology of the Volcanic Area of the East Moreton and Wide Bay Districts, Queensland" (pp. 74-173).

Apart from occasional visits from geologists since that time, the region of Coolum does not appear to have been studied especially, although a few years ago Mr. C. C. Morton, of the Geological Survey, studied a nearby region when reporting on the auriferous deposits of the North Arm Goldfield some eight or nine miles to the west.

The basal rocks of the area are sedimentary in character and form portion of the Mesozoic fresh-water deposits which were so widely deposited in what is now South-Eastern Queensland. These in their turn have been intruded by a series of igneous masses, which probably did not reach the surface until exposed by denudation.

The igneous rocks are acid to intermediate in character, ranging from aplites to diorites, and are seen on the cliff faces and shoreline between Coolum Beach and Point Arkwright.

Subsequently volcanic activity took place in the area and Mt. Coolum and Peregian or Emu Mountain now remain as volcanic plugs.

The region is characterised by much low-lying and swampy country which, until the last emergence of several feet, was in all probability below sea level. At that time Mt. Coolum, the Point Arkwright and Eurungunder mass and Peregian were islands, the coastline proper being several miles to the west of its present position.

The accumulation of coastal sand dunes has barred the openings to the sea of these swampy areas, and they now drain with difficulty. Quite considerable peaty accumulations also have taken place, and just to the north of the Coolum Beach settlement, dark brown to black peaty sandstone of recent age, containing tree roots and stumps, outcrops on the foreshore. No doubt at the time of its formation the strand line was somewhat more easterly.

Altogether distinct from this organically formed brownish black sandstone are deposits of loosely coherent heavy black metallic sands mixed with the

beach sand, especially at and above the high tide mark. These perhaps are residual products from the old Palaeozoic rocks of South-Eastern Queensland and Northern New South Wales, and contain rutile, magnetite, ilmenite, together with minute amounts of gold and perhaps platinum.

Jensen ascribes the source mainly to the disintegrated igneous intrusions.

The geology, as indicated above, is of considerable interest, and although more varied, is similar in many respects to that of the Noosa Headland some 10-12 miles further north.

### MESOZOIC SEDIMENTS

These are sandstones, grits, fine conglomerates and shales, very similar lithologically to other occurrences in South-Eastern Queensland. At Points Arkwright and Perry, they appear to be more or less horizontally disposed. Sandstones predominate and often show very much current bedding, suggesting deposition under estuarine conditions. Most of the sandstone, and especially the shaley material, has been much impregnated with limonite.

Recognisable fossil plant remains were not seen, but petrified wood is common along the foreshore. At Petrie's Creek, Nambour, the sediments contain *Thinnfeldia odontopteroides*, associated with a thin coal seam, while between Cooroy and Tewantin shales containing *Elatocladus planus* have been found. The sediments in the opinion of some are to be assigned to the base of the Walloon, rather than to the Ipswich, series and, if so, would have to be regarded as Jurassic in age.

Some of the sandstone layers at Points Arkwright and Perry have in them rounded to subangular patches of carbonaceous shale or shaley sandstone incorporated in a breccia-like manner. This occurrence is not uncommon, and is rather striking, so that the question of its origin excites the interest of many. Perhaps it results from the deposition of layers of mud on a loosely coherent sandstone stratum. The former, after desiccation and compaction, becomes submerged by a further deposit of sand, and then becomes broken and brecciated under the load. Ultimately, the whole lot is cemented into the brecciated mass which is exposed to-day.

### PEAT SANDSTONE

North from Coolum Beach, along the foreshore is a development several feet thick of recent sand, cemented by a peaty material. This outcrop on the strand line may at

one point be traced continuously under the sand dunes to the peaty material in the swamps behind the dunes. In type the brownish black sandstone is similar to that at Tweed Heads, and at so many places along the coast of South Eastern Queensland. It may have preserved in it well developed roots of trees which once grew in it, and people speak of these as being remnants of a fossil forest. They are merely the roots of trees which once grew in the swamps. The black peaty cementing material in the Tweed Heads area has been analysed, and its organic nature definitely established.

### IGNEOUS INTRUSION.

Of the greatest geological interest is the intrusion of porphyrites and aplites into the Mesozoic (*Jurassic*) sediments. In New South Wales, Victoria, Tasmania and South Australia major igneous intrusion is not known to occur after the Palaeozoic era.. In South-Eastern Queensland we have at Enoggera, Stanthorpe, Cedar Creek, Samford and elsewhere late Palaeozoic intrusions, and it is important therefore to find at Coolumb and at Noosa definite evidence of intrusion into the still younger Mesozoic sediments.

At Point Arkwright, sandstones which have been baked by heat into quartzites are seen resting immediately on top of the porphyrites and sections in the wave-cut platform show the intrusion of the porphyrite right into the sediments. The evidence is beyond question here, as at Noosa.

Where the heat of intrusion has been greatest the sandstone has been altered to quartzite, but the thickness of affected material is a few feet only. In the intruding porphyritic rocks are many inclusions, and one agrees with Jensen as to the laccolithic character of the igneous mass. Many undigested fragments are incorporated in the upper part of the intrusion, but in addition there are many Xenoliths which have been brought through from below—notably amongst these are fragments of (a) coarse pink granitic rock of a type which is unknown to geologists in S.E. Queensland nearer than Stanthorpe; (b) coarse grey granitic rock similar to those exposed in the Mary River Valley near Conandale. The evidence of coarsely crystalline deep-seated intrusives having been penetrated by the porphyritic mass on its upward path is clear, and in this way some insight of what may exist at depth in this area is furnished.

The porphyrite is rich in well-developed phenocrysts of plagioclase and hornblende, the latter being occasion-

ally up to an inch in length. The rock is not holocrystalline, as there is a certain amount of glassy base. The minerals present in order of abundance are plagioclase, hornblende, orthoclase, biotite, quartz, magnetite, sphene, calcite and apatite.

The rock has been very fully described by Jensen\* who also gives a complete chemical analysis. This latter shows the rock as containing a little less than 60 per cent. of silica.

The northern part of the intrusion at Point Arkwright on the foreshore is a fine grained pink aplite, which quite clearly has intruded the porphyrite. It is holocrystalline, and the order of abundance of the minerals is, pink orthoclase, quartz and a small amount of hornblende, which is often altered into chlorite. Frequently the orthoclase and quartz are intergrown owing to their being present in eutectic proportions. It is named by Jensen a granophyric aplite\*, and the name is well merited.

In comparison with the Noosa Head intrusions we do not find the dyke-like bodies so characteristic of that place, also at Noosa the diorite mass is much more acid, but there is nothing corresponding to the massive granophyric aplite near Coolum Beach.

\*Proc. Linn. Soc., N.S.W., 1906, Pt. 1, pp. 122-124; also p. 169.

### VOLCANIC ACTIVITY.

At *Mt. Coolum*, which is some 600 feet high, the volcanic plug of comendite is in the nature of a huge flattened dome. Like the several plugs of the Glasshouses, the Coolum mass is destructive and is a bluish grey in colour, fine-grained with dark blue-black specks of amphibole, probably riebeckite.

Jensen\*\* has described several specimens from about Coolum, and under the microscope the rock is finely holocrystalline, is made up of idiomorphic, lath-shaped crystals of sanidine, deep blue almost black rods of soda-rich hornblende (riebeckite), and small masses of interstitial quartz.

On analysis the rock yields somewhat unexpectedly nearly 75 per cent. silica, and is rich in alkalies, having 4.77 per cent. Soda and 3.99 per cent. Potash. Its specific gravity is 2.70.

To one familiar with the alkali rich Kainozoic volcanic plugs of the Glasshouses and elsewhere in this area, the Coolum mass clearly is one of the family. Columnar structure is quite common in the mass and fluxion structure is displayed well, quite frequently.

\*Op. cit. p. 126.

\*\*Op. cit. pp. 155-156.



At *Peregrian* a biotite trachytic rock with well developed fluxion structure occurs. This mass which is about half as high as Coolum, is in type almost indential with that at Mt. Timberwah, 3 miles or so west of Tewantin.

The rock is composed essentially of sanidine, but there are also crystals of hornblende, probably soda-rich and occasional large flakes of biotite. The rock may well be termed a Biotite Trachy-Rhyolite.

At *Eurungunder* the Trachy-Rhyolite is according to Jensen of a similar character.

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### THE PLANT COMMUNITIES IN THE NEIGHBOURHOOD OF COOLUM.

The Botanical Report of the Easter Camp of 1938.

By S. T. Blake, M.Sc., Department of Biology,  
University of Queensland.

A great deal of interesting variety is to be found in the neighbourhood of Coolum, a small township situated on the coast about 65 miles north of Brisbane, and possessing an average annual rainfall of about 65 inches. The details for Coolum itself are lacking, but at Caloundra about 15 miles further south, the driest months are July-October inclusive, in which the average monthly rainfall is 2½ inches. The plant-communities are varied, and there is a noticeable mingling of northern and southern species. Specimens collected during the camp provide the most northerly records for some species, and the most southerly for others. A few are known to extend a little further to the south in the neighbourhood of Buderim or Caloundra.

A great deal of the country is low-lying and often swampy. Bold sandstone cliffs about 50 feet high with narrow sandy beaches between the headlands fringe the shore for some distance to the south of the township, while to the north is an extensive broad sandy beach with dunes on the landward edge. Dunes also occur on the top of some of the cliffs. An occasional sandstone ridge occurs back from the coast, while two isolated trachytic peaks, Mt. Perigian and Mt. Coolum, are at no great distance from the township. The former is about 200 feet high, and lies to the north, while the latter is rather over 600 feet high, is much bolder with some fine precipitous rock-faces, and lies to the south-east. The soil throughout is distinctly sandy in nature, often without any clay content at all, while at the time of our visit water was in abundance, and springs and seepages were very numerous, particularly near Mt. Coolum.

On the coastal dunes the usual strand flora of our southern beaches is to be found. Most of the species are long-creeping plants and many are widely spread in tropical and sub-tropical regions in similar situations. The outstanding plants at Coolum are *Ipomoea pes-caprae* (goat's foot convolvulus), with its flimsy pinkish-lilac flowers, *Oenothera Drummondii*, with its beautiful though delicate lemon-yellow flowers, the less conspicuous *Lippia nodiflora*, the less distinctly creeping *Mesembrianthemum aequilaterale* (pig-face) with its thick, fleshy, tapering, three-edged leaves and deep pink flowers, the three grasses, *Spinifex inermis*, *Sporobolus virginicus*, and *Zoisia macrantha* (coastal couch) and the sedges *Carex pumila* and *Scirpus nodosus*. The last differs from the other plants in being densely tufted and rush-like, 1-2 feet high. It is much more characteristic of the southern states, and this is the most northerly locality yet recorded for it. *Hibbertia volubilis* and *Stephania hernandiaefolia* also occur. The *Spinifex* and the *Ipomoea* are the first plants to colonise the dunes. They bind the sand, making it more stable, and then other plants follow. On the top and towards the landward side, on the most stable parts of the dunes, the sparsely-foliaged tree, *Casuarina equisetifolia* var. *incana* (costal she-oak), is common with its long pendulous somewhat glaucous slender branchlets with their whorls of minute scale-leaves (figs. 1 and 4).

South of the township, where the sandy beaches of the little bays meet the masses of boulders at the foot of the cliffs, the *Ipomoea* persists in places, and occasionally the creeping grass, *Lepturus repens*, was seen scrambling over the rocks. Though characteristically a tropical species this grass is to be found on islands in Moreton Bay, in the latitude of Brisbane. Most interesting, however, was the discovery of a small society of the convolvulaceous plant, *Calystegia Soldanella*, on and between the boulders.

On the rocks between tide-levels is a rich growth of seaweeds. While the majority of these are Brown Algae (*Phaeophyceae*) the beautiful pale-green sea-lettuce (*Ulva* sp.), nearly covered some of the rock slabs. A rich and interesting field awaits any one who will take up the study of this (for Queensland) poorly known group of plants.

Above high-water mark the cliffs carry more or less scattered small trees of *Pandanus pedunculatus* (pandanus, or sometimes wrongly called "bread-fruit"), with its characteristic stilt-roots, and the equally familiar *Banksia integrifolia* (honeysuckle). A low, dense, spreading, shrubby form of *Myoporum acuminatum* is fairly

abundant. (When growing on flat ground, and particularly when at all sheltered, this species forms shapely small trees or tall single-stemmed shrubs.) Between the trees and shrubs is a dense growth of *Themeda australis* (kangaroo grass) with occasionally other smaller plants. *Vinctoricum sarmentosum* and a variety of *Parsonsia longifolia* scramble over the rocks in less grassy places, while the somewhat fleshy herb, *Lobelia anceps*, with its pale blue flowers occupies the crevices.

On the tops of the headlands is usually developed a low scrub with the seaward side shorn by the force of the wind (fig. 2). The plants are mostly dense, usually dark green shrubs, 6-10 feet high or so, usually with small, often narrow (ericoid) leaves. Among those present are *Petalostigma quadriloculare*, *Leucopogon Richei*, *Ricincarpus pinifolius*, *Phebalium woombye* and *Banksia integrifolia*. In open patches between the edge of the scrub and the edge of the cliff is usually a low growth of *Trachymene ericoides*, very stunted *Phebalium woombye*, and stunted kangaroo grass. On the hills arising behind, the scrub becomes more open and *Callitris columellaris* (eypress pine) and *Tristania conferta* (scrub box) enter into the community with *Banksia* (as trees) and the *Callitris* tending to form separate stands. Under the often dense canopy is developed a characteristic ground vegetation, of which the most characteristic plants are a dwarf grasstree, *Xanthorrhoea* sp., the sedges *Lepidosperma laterale*, *Trachystylis foliosa*, *Cyperus enervis*, *C. stradbrokeensis*, and *Schocnus ericetorum* var. *ornithopodioides*, and the grasses, *Paspalidium flavidum* and a tall, broad-leaved form of *Cymbopogon refractus* (barb-wire grass). Where the *Banksia* dominates the slopes, a more open canopy is produced, and the shrubs tend to disappear. The grass thickens, predominantly kangaroo grass and barb-wire grass, with *Eulalia argentea*, *Digitaria parviflora*, *Eriachne Muelleri*, *E. rara*, the sedges *Cyperus leiocaulon*, *Scleria Benthamii* and forms of *Pimbristylis dichotoma*, *Centranthera hispida* and *Mitrasacme alsinoides*.

On still higher ground and on many slopes sheltered from the sea-breezes normal Eucalyptus forest develops. The chief trees are *Eucalyptus gummifera* (bloodwood), *E. micrantha* (scribbly gum), *E. paniculata* (grey iron-bark), and *Casuarina suberosa* (forest she-oak), sometimes with *Tristania suaveolens* (swamp mahogany), *Acacia Cunninghamii* (wattle), *Alphitonia excelsa* (red ash), and, near the highest parts, *Eucalyptus carnea* (red stringy-bark). Kangaroo grass usually forms the greater



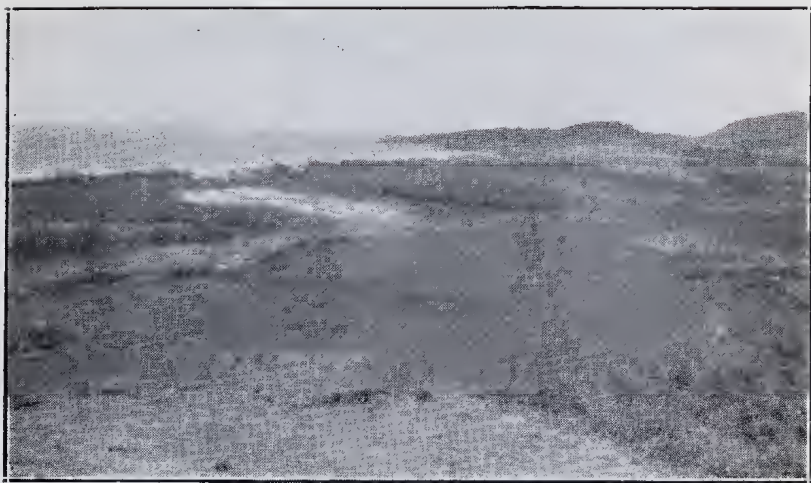


FIG. 1.—View from the top of Mt. Perigian looking south. Across the centre is a large wallum flat, beyond are tall *Melaleuca* swamps, to the left of these are open swamps with a belt of *Phragmites* and dwarfed *Melaleuca* between them and the flat, in the right middle distance is *Melaleuca* forest, at bottom right is *Banksia* forest. Along the coastline are sand-dunes with *Casuarina* to the left, while in the distance the cliffs to the south of the township can be seen, rising behind into a hill partly cleared of timber, Mt. Coolum is in the extreme right distance.



FIG. 2.—Low scrub on top of sea-cliff showing wind-shear. The shrubs are chiefly *Petalostigma quadriloculare*, and under and in front of these are chiefly *Themeda australis*, *Cymbopogon refractus*, and *Cyperus enervis*.

—(Photos by S.T.B.)





FIG. 3.—Scene within a tall dense forest of *Melaleuca viridiflora* with dense undergrowth, chiefly of *Blechnum serrulatum*. *Lyonsia reticulata* can be seen twining round some of the trees, while the broadish leaves in the upper centre are those of *Ficus stephanocarpa*.



FIG. 4.—Coastal dunes with *Casuarina* in distance, *Phragmites* and dwarfed *Melaleuca* swamp across centre, and in the foreground is a dense growth of chiefly *Melastoma*, *Ischaemum australe*, *Paspalum orbiculare*, *Fimbristylis nutans*, and some *Blechnum serrulatum*.

—(Photos by S.T.B.)

part of the undergrowth, sometimes with *Chrysopogon sylvaticus* present. Dense patches of *Lantana camara* (lantana) occur in places. *Exocarpus cupressiformis* (wild cherry), a small tree parasitic on roots of other trees, is occasional.

In depressions and on the lower ground generally, either near the coast or inland, we find three distinct trends. Where water lies for any length of time swamps of some kind or other are to be found. In a few places just behind the coastal dunes, where a break in the latter has allowed some influx of sea-water during gales or high tides, communities of the maritime rush, *Juncus maritimus* var. *australiensis*, are to be found. Beyond the influence of salt water, the *Juncus* is replaced by sedges of somewhat similar appearance. *Cladium junceum* and *Schoenus brevifolius* form such communities, those of the former frequently bordering on those of the rush. In yet another case, a community of the flat-stemmed, flat-leaved, *Lepidosperma exaltatum* occupies an area of about an acre.

Where there is more or less permanent water, the reed, *Phragmites communis*, tends to dominate the situation. More often tea-tree (*Melaleuca viridiflora*) is present. This tree dominates three rather distinct communities, or in other words, occupies a large area with varied drainage conditions, and with corresponding variations in the ground vegetation. In its extreme development the trees are stout, straight, and tall, and very close together.

With *Phragmites* are commonly associated many other plants, including *Lepironia articulata*, *Chorizandra cymbaria*, *Cladium teretifolium*, *C. rubiginosum*, *Cyperus haspan*, *Fuirena glomerata*, *Philydrum lanuginosum*, and *Utricularia* spp. The four first-mentioned plants are more or less rush-like, and together with *Phragmites*, produce creeping rhizomes. *Phragmites*, *Lepironia* (both these attaining 6 feet in height), and *Chorizandra*, frequently tend to produce pure communities of their own.

Where free water does not lie for any length of time, there is to be found a community of quite a different aspect (fig. 3). Occasionally other small trees occur in the forest, such as *Ficus stephanocarpa* (sand-paper fig), while the liana, *Lyonsia reticulata* (monkey-rope), is also to be found. At the edge, *Casuarina glauca* (swamp she-oak) occurs, and is sometimes abundant. Between the trees is a fairly close growth of the bungwall fern (*Blechnum serrulatum*), with scattered large clumps of the tall sedge, *Cyperus lucidus* var. *sanguinolentus*, plants

of the much smaller *Carex neurochlamys*, and often a close growth of the creeping grass, *Ottochloa gracillima*. Where seepages enter the forest the handsome *Panicum melananthum* may be found.

On slightly higher and better drained ground the trees are more distant and not so tall or straight, and here we find a community reminiscent of some of the more northern *Melaleuca* forests. Grasses and sedges form the chief ground cover, which is fairly close and relatively low, the individuals (chiefly perennials) being rarely more than 3 feet high, and often much lower. *Eremochloa* sp. is the dominant grass, with *Digitaria orbata*, *Panicum* sp., the northern *Ischaemum fragile* and *Fimbristylis furva*, the widely-spread *F. nutans* and a characteristic broad-leaved form of *F. dichotoma*, and others.

Quite a large area is occupied by Wallum flats (see fig. 1), often with patches of *Banksia serratifolia* (wallum), or *B. integrifolia*. The soil is a rather loose, deep sand, and the vegetation heath-like in nature. Trees are typically absent, while in the wetter places bog-moss (*Sphagnum* sp.) sometimes occurs. *Xanthorrhoea minor* (grass-tree), though stemless, is one of the most striking plants by reason of its dense tufts of long, hard and very narrow leaves, and its stout flowering or fruiting scape about 2½ feet high. The other dominant plants are chiefly small shrubs and undershrubs with small hard narrow leaves, and belong particularly to the families Leguminosae, Myrtaceae, Rutaceae, Epacridaceae, and Proteaceae, while Restiaceae, Cyperaceae, and Orchidaceae (ground orchids) are usually abundant. The flats here do not differ appreciably from those further to the south, except that the shrubs are unusually low, often scarcely 18 inches high. How much of this dwarfing is due to fire and how much to wind is difficult to say. Among the plants on these flats at Coolm are *Gompholobium virgatum*, *Dillwynia floribunda*, *Baeckia crenulata*, *Leptospermum parvifolium*, *Boronia ledifolia*, *B. falcifolia*, *Eriostemon scaber*, *Epacris pulchella*, *Sprengelia Ponceletia*, *Leucopogon virgatus*, *Conospermum tarifolium*, *Strangaea linearis*, *Petrophila Shirleyae*, *Banksia integrifolia* var. *paludosa*, *Pimelea linifolia* (shrubby plants); *Schoenus brevifolius*, *S. ericetorum* var. *ornithopodioides*, *Cladium Muelleri*, *Costularia paludosa*, *Caustis recurvata*, *Scleria rugosa*, *S. laxa*, and a form allied thereto, and *Fimbristylis pauciflora* (Cyperaceae). The last-mentioned, a species little known in Australia, is here very abundant, particularly along the tracks. The Restiaceae include, among others, *Hypolaena lateriflora*, *Leptocarpus tenax*,



and *Restio complanatus*. Grasses are relatively few, and practically restricted to *Aristida* aff. *heterochaeta*, *Themeda australis*, *Eremochloa* sp., *Eriachne rara*, *Schizachyrium obliquiberbe*, and *Panicum fulgidum*. Other herbaceous plants include *Drosera* spp., *Mitrasacme paludosa*, and *Sowerbaea juncea*.

In the wetter places there is a tendency to the formation of the swamps described above, often with *Melaleuca viridiflora* present. This frequently occurs flowering as a small shrub, partly at least as the result of fire (see fig. 4). *Sphagnum* is fairly abundant in such places, likewise the bungwall fern, *Blechnum serrulatum*. Other plants usually occurring in such places are *Melastoma malabathricum*, *Pultenaea paleacea* var. *grandiflora*, *Villarsia reniformis*, *Restio tetraphyllus*, *Ischaemum australe*, and *Utricularia*. *Gahnia erythrocarpa*, usually common in such situations elsewhere, is here only occasionally seen.

On the higher places the restiads tend to disappear, grasses become more abundant and *Banksia serratifolia* and *B. integrifolia* occur. In a modified form this type of vegetation extends up the slopes of Mt. Perigian, and on the eastern side of Mt. Coolum. The commonest plants are *Xanthorrhoea minor*, stunted bushes of *Banksia integrifolia* var. *paludosa*, *Casuarina suberosa*, *Exocarpus cupressiformis*, *Petrophila Shirleyae*, etc., with kangaroo grass. At the foot of the former peak occur a few trees of the rather dwarf, very scraggy *Eucalyptus Seeana* var. *constricta*, associated with *Melaleuca viridiflora* and other plants.

The tops of both mountains are open and without any continuous layer of soil. *Aristida jerichoensis* (a rare spear-grass) occurs on both peaks, while the yellow-flowered composite *Rutidosia Murchisonii* is particularly abundant on Mt. Coolum, though it occurs also on Mt. Perigian. On the rocks of the latter are to be found *Dendrobium speciosum* (king orchid), and the rambling *Hoya australis*, with its broad, fleshy leaves and white strongly-scented flowers. A solitary plant of *Mesembrianthemum aequilaterale* (pig-face) was also seen, a most unusual habitat for this species. The peculiar little grass *Tripogon loliformis* occupies patches of soil between the rocks. The rock faces on Mt. Coolum are commonly occupied by the curious *Xerotes confertifolia*, with its small, dense tufts of narrow rigid curly leaves with two pungent points at the end, and its inconspicuous flowers. In the Eucalyptus forest near the top the rush-like sedge, *Schoenus vaginatus*, was observed. On the banks of a small creek near the foot occur the ferns, *Culcita dubia* (mountain



bracken), *Adiantum hispidulum* (lady's fingers), and *Doodia heterophylla*, with the grasses *Ottochloa nodosa* and *Oplismenus aemulus*, and the sedge *Scleria hebecarpa*.

Particularly near Mt. Coolum there occur swampy tracts different in nature from the swamps described above. Some occupy low-lying ground, others occupy seepages or shallow streams, often on relatively high ground. The dominant plant is the sedge *Rhynchospora aurea*, which forms rather large dense pale green tussocks, 2-4 feet high, with large bunches (corymbs) of golden brown spikelets. Associated is the very rare sedge, *Eleocharis tetraquetra*, the grasses *Leersia hexandra* (rice grass) and *Isachne australis*, and *Ammannia pentandra*, while *Paspalum orbiculare* and *Eleocharis minuta* occur at the edges. On open, marshy ground facing the sea the common plants are *Fimbristylis dichotoma* var., *Cyperus polystachyos*, *Eleocharis minuta*, and *E. caribaea*. The latter is also to be found in rock crevices facing the sea near the mouths of small streamlets.

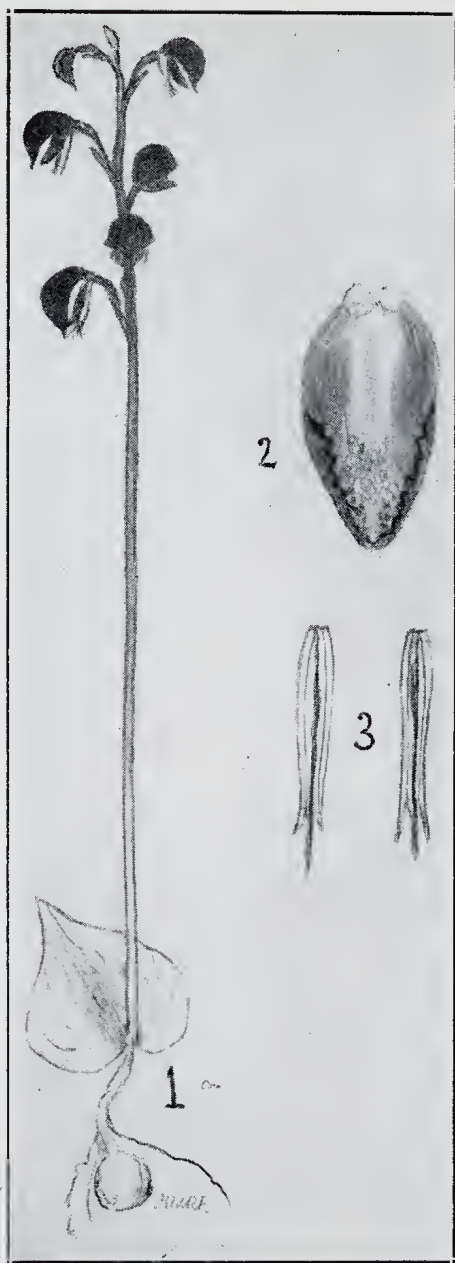
Patches of rain-forest occur in places near the coast in gullies or on the sides of them. Formerly these areas were much more extensive, but the greater part has been cleared for agricultural purposes (bananas and sugar-cane).

Considerable areas of forest have also been cleared for artificial pastures. These were chiefly *Paspalum dilatatum*, but they are being actively invaded by the inferior *Axonopus compressus* (carpet grass). *Desmodium triflorum* and *Trifolium repens* (white clover) are two legumes common in these pastures.

Occasionally a curious mixture of types occurs. In one shallow gully for instance, there occur *Araucaria Cunninghamii* (hoop pine), a few other rain-forest species such as *Mischocarpus pyriformis*, *Eugenia cyanocarpa*, *Alyxia buxifolia*, and *Pittosporum revolutum*, together with *Callitris*, *Melaleuca*, *Pandanus*, and *Tristania conferta*. *Exocarpus latifolius* parasitises the roots of some of the trees. The ground vegetation is that characteristic of the open forest or dwarf scrub, comprising *Xanthorrhoea*, *Lepidosperma laterale*, etc.

Of the species mentioned above, the following here reach their most southern or almost their most southern limit:—*Fimbristylis furva*, *F. pauciflora*, *Eleocharis caribaea*, *Scleria hebecarpa*, *Ottochloa nodosa*, *Ischaemum fragile*, *Eriachne rara*; also *Freycinetia propinqua*. The following here reach their most northerly limit, so far as at present known:—*Cyperus stradbrokeensis*, *Schoenus*





**Acianthus Ledwardii** sp.n.

1. Plant, natural size.
2. Labellum from above, much enlarged.
3. Lateral sepals, showing variation in length of middle "prong." Much enlarged.

*ericetorum* var. *ornithopodioides*, *Cladium Muelleri*, *Chorizandra cymbaria*, *Scirpus nodosus*, *Calystegia Soldanella*, and *Sphagnum*.

Some other species are only known from a very few localities.

## A NEW ORCHID FOR SOUTH QUEENSLAND

*Acianthus Ledwardii*, sp. nov.

By the Rev. H. M. R. Rupp, Raymond Terrace, N.S.W.

Planta *A. fornicato* similis, circiter 5 cm. alta, folio supra pallido. Flores 2-6. Sepalum dorsale cucullatissimum, mucronatum: sepala lateralalia linearia, directa, insigniter ad apices trifida: petala late lanceolata, acuta: labellum ovatum, infra convexum, cum marginibus incurvatis serrulatisque. Discus posteriore levis, anteriore papillosus. Columna flexa cum apparato reproductivo sicut in *A. fornicato*.

Plant resembling *A. fornicatus* R. Br., about 5 cm. high, leaf pale green above. Flowers 2-6, somewhat depressed. Dorsal sepal deeply hooded, mucronate at the apex, with a short depressed point. Lateral sepals linear, parallel (not divergent as in *A. fornicatus*), near the apex shortly and prominently trifid, the outer divisions shorter than the middle one. Petals broadly lanceolate, short. Labellum ovate, convex below, with *incurved* serrulate margins. Disc smooth towards the base, papillose towards the blunt apex, lacking the papillose longitudinal ridges of *A. fornicatus*. Column bent, reproductive apparatus as in *A. fornicatus*, but stigma less prominent.

Burleigh Heads, South Queensland, June, 1934, and June, 1938: Dr. C. P. Ledward.

Some doubt has been felt, both by the discoverer and myself, whether this interesting little orchid might not be included in *A. fornicatus*, to which it is very obviously related. The gynostemium is identical in almost every particular. But the labellum is so strikingly different, and other features of the flower give it such a distinctive appearance, that it could only be placed in *A. fornicatus* by extending the description of the latter to cover far greater variability than seems desirable. *A. fornicatus* is an exceedingly common terrestrial from Southern Queensland to Southern New South Wales, and in the latter State is found as far west as Molong. Among the thousands of plants I have seen over many years, there was never one with a labellum like that of Dr. Ledward's



plant. A tabulated statement will show the distinctive character of the new species better than narrative:

*A. fornicatus.*

Dorsal sepal acuminate with a long, fine point, straight or upturned.

Lateral sepals connivent under the labellum, then diverging into long, fine points. Where the sepal becomes filamentose, at the base of the filament, are two small teeth, but sometimes these are rudimentary or absent. Petals short and usually narrow.

Labellum concave below, above with a median channel between two high papillose ridges; margins recurved; apex acute.

These are the main differences, and they seem to me sufficient to justify specific separation.

Dr. Ledward states that the new plant is rare, and has so far only been seen in one locality. He discovered it in 1934, but we both felt that further material was desirable before deciding on its status. During the next three years, owing to unfavourable seasons and other circumstances, he did not see it. It has now reappeared in June, 1938, precisely identical in form with my drawings of the 1934 specimens. I am glad of the privilege of naming it after its discoverer, who has done so much in recent years to add to our knowledge of the orchid flora of Queensland south of Brisbane.

The colour of the flowers may be described as chiefly a deep purplish or reddish brown. *A. fornicatus* varies from a pale translucent green to dark red-brown, but I have never seen it with the suffused purplish tint of the newcomer. The basal tubercles of the labellum are as in *A. fornicatus*.

*A. Ledwardii.*

Dorsal sepal abruptly mucronate, with a short depressed point.

Lateral sepals parallel, not much longer than the labellum, each sepal prominently trifid at the apex.

Petals short and broad.

Labellum convex below, above concave nearly to the blunt apex; ridges absent, but the anterior part of the disc very papillose; margins incurved and irregularly serrulate.

## ORNITHOLOGY OF THE MT. COOT-THA RESERVE. TAYLOR RANGE

By N. Jack.

In presenting the following article, which is the result of observations made over a period of seven or eight years, I am not assuming that this district has not been explored and checked up by more competent ornithologists than myself before now. An attempt has been made, however, to present as full a list as possible and to ascer-

tain the number of species that can be found in a certain area. In this case, it is not a very large one, so that the following total of approximately one hundred species would appear to be a fair average for this type of country. A careful check of their movements as far as the district is concerned has been kept over this period, and I hope these observations may be of interest for comparison with previous lists that have been made, for probably the ornithology of the district has changed considerably with the years.

### TYPE OF COUNTRY

The range itself is open forest country, with a certain amount of undergrowth, consisting mostly of lantana, in the gullies which, in normal times, are generally dry, with a series of isolated pools in the lower levels. These become swollen with the heavy rains and flow directly into Enoggera and Ithaca Creeks. In continued dry weather conditions in the reserve become uncongenial for bird life, due to the drying up of this water supply which, to make matters worse, generally coincides with the periodical outbreaks of bush fires, so it is quite obvious that the presence of bird life is influenced to a great extent by the weather conditions. The surrounding country is sparsely settled and well watered with Enoggera and Ithaca Creeks, so that quite a number of birds are to be found along the watercourses and in the open paddocks and cultivated land adjoining them.

### CLASSIFICATION

For the sake of convenience, I have adopted the somewhat unscientific method of dividing the species into four groups. The first consists of those that are more or less permanent residents of the range. These are to be found at any time of the year, and have no definite migratory movements. A second group consists of local birds that make no definite migration but are noted a sufficient number of times to rule out any possibility of their presence being accidental. A third group consists of birds that are definitely known to be nomadic and migratory, while last but not least I have created a fourth group consisting of birds that are definitely strays and accidental to that area.

### PERMANENT RESIDENTS

The Stubble Quail appears to be the only representative of that order to be found in the reserve. He is not at any time too plentiful or fond of showing himself, but generally waits until you are almost upon him, whereupon

he is off with a "whirr" so that any accurate observation or close study regarding his habits appears to be out of the question. The Peaceful Dove is fairly common, although not as plentiful as his introduced Indian relative, of which the less said the better. The Curlew or Stone Plover can be disturbed occasionally during the day, but is mostly heard at night in the open paddocks adjoining the range. Only two birds of prey have been definitely identified, the Nankeen Kestrel and the Brown Hawk. Experiences of night observing in search of nocturnal birds of prey have been disappointing, the Boobook Owl being the only species definitely identified. Due allowance must be made, however, for the writer's inexperience in this branch of ornithology, which is a test of skill for even the best of bird men. Incidentally the reserve is not without its Marsupial population, this conclusion being forced upon the writer in no uncertain manner by sundry grunts, howls, and other indescribable noises which could not by any stretch of imagination be attributed to any species of night flying bird.

Strangely enough, three species of Rosella—the Eastern Crimson, and Pale-Headed—are to be found in the reserve, the local species, the Pale-Headed, being the commonest. No other species of Parrots have been observed, with the exception of the Lorikeets, which I have classified as nomadic, to be dealt with later. The Tawny Frogmouth is to be found on the range, but his method of camouflage is so effective that only the experienced eye can locate him. This cannot be said of the Dollar Bird, who seems only too anxious to advertise himself and his nesting site. However, as he invariably nests in the most inaccessible places, all his antics and weird cackling may not be as foolish as they appear to be at first sight.

Four species of Kingfisher—the Kookaburra, Sacred, Forest and Azure—are all well represented. Apparently "Old Jack's" outbursts of ribald mirth are not confined to the daylight hours. At times he is overcome with his sense of humour after darkness has set in, and the results can more than favourably compare with the best efforts of the Curlew, Boobook Owl, Koel Cuckoo and other nocturnal disturbers of the peace. This also applies to the Sacred, and possibly the Forest Kingfisher, as the piping of one of these birds can sometimes be heard at night. I have caught the Sacred in the act, but am not certain of the Forest. Both nest in termites' mounds, and are very vicious in defending their home. The Azure Kingfisher is a mysterious creature who darts along the surface of the creek with his shrill piping cry.

In this part of the country the Swallows do not leave us during the winter, so that the Welcome Swallow and Fairy Martin are to be seen all the year round. At certain times of the year they congregate in large flocks, apparently augmented by migrants from other parts.

Our smallest bird, the Brown Weebill, is much in evidence among the sapling growth and low bushes. He is generally found in small parties, and can be easily distinguished by his short, stumpy bill, his general restlessness and his call, a loud one for such a small bird, which sounds something like "We need it." He is fond of associating with other small birds, and more often than not, the Buff-tailed Thornbill appears to be his choice. The dainty little white-throated Warbler is also a stationary species in this part of the country. He is a bird of the treetops, where he will sit and sing his half a chromatic scale (with extemporisations) by the hour. He is prettily clothed in yellow and olive, and builds a neat little bag-shaped nest to rear his young. Altogether a charming little fellow.

The familiar Willie Wagtail needs no introduction. He is everywhere. He is also to be heard with his "Sweet Pretty Creature" at all hours of the night, and appears just as lively next day in spite of the fact that he must get very little sleep. Almost as common is the Black-faced Cuckoo Shrike, which is reputed to be a migratory bird, but can always be found at any time of the year in Brisbane. His relative, the Varied Triller, is one of the distinctive birds of Mt. Coot-tha. He is to be found in pairs along the creeks and gullies, and is very quiet and unobtrusive in his ways. Apparently he has not the vocal abilities of his relative, the White-Winged Triller, or if he has he does not display them very often. The thick growth of lantana in places around the reserve affords excellent cover for our old friend, the Whip Bird. If you are up early enough in the morning or out late enough in the evening, you will surprise him out on his foraging expeditions, which he regularly takes into the open. Besides the usual whip call, he has other notes. He is capable of a series of whistles, and when he is scratching among the dead leaves and other debris that afford him his food supply, he indulges in a most peculiar call that sounds as though he were chuckling to himself over some huge joke.

Probably the most eccentric of our small birds is that little fellow we call the Golden-Headed Fantail Warbler. A digression upon him and his peculiarities would constitute an article on its own, so we will content ourselves



by stating that he is to be found around the reserves in uncultivated paddocks, crops and swampy country; in fact, anywhere where there is plenty of rank grass and weeds, and plenty of blue sky overhead. Four species of Thornbill are well represented. The Brown and Striated are closely associated and some difficulty is experienced in identifying them. The Striated is more strikingly marked, and much more yellowish than the Brown, although the presence of immature birds complicates matters. The Brown Thornbill has a note peculiar to himself, a short musical trill, which is quite unmistakable once heard. The Buff-tail is a merry little fellow and a lover of mountain ranges, in comparison with the Yellow-tail, a creature of the open and a ground-loving bird, although he seems to prefer a convenient pine-tree in which to build his double-storied nest. The mysterious white-browed Scrub Wren is well domiciled along the shady creeks and undergrowth where he builds his nest, well hidden from the chance passer-by, but strangely enough not so well hidden to prevent him from being occasionally imposed upon by some maurauding Cuckoo. The genus *Malurus* is represented by the Variegated and Red-backed Wren.

The Peewee, or Magpie Lark, is much in evidence. The Grey Thrush is the prima donna of the range, but is occasionally challenged by her relative, the Rufous Thrush, who is of a more retiring disposition and who prefers to scratch for a living among the undergrowth. Occasionally she will be seen out in the open, and has a habit of climbing up the trunks of trees to pry out any insects from the rough bark. A species that would be very easily missed in a casual examination of the bird life of the district.

The Magpie carols in the dawn from the neighbouring paddocks. So also is heard the sweet note of the Grey Butcher Bird. I have frequently noticed, however, that where a colony of Butcher Birds have established themselves, all other forms of bird life seem conspicuous by their absence. The Pied Butcher Bird is rarer and prefers the more open country.

Two gifted vocalists are the Golden and Rufous Whistlers. The Golden prefers the more thickly timbered country, and has a voice of exceptional power. "Be quick! Be quick! Be quick!" he cries, to be answered by his plainer coloured mate in similar strain. The Rufous has a song that is well sustained and brilliant, only rivalled by that of the Gray Thrush. He is found in the more open country. He is very quiet in the autumn, but sings

vigorously throughout the winter months, and is heard at his best in the courting season, early spring. Their relative, the Northern Yellow Robin, is one of the first birds we learn to associate with Mt. Coot-tha; in fact, we instinctively look for him whenever we approach that area, and we are seldom, if ever, disappointed. Like his southern representative, he heralds in the dawn with his soft piping note, although what time he commences I am unable to say—I have never been up early enough to beat him.

Birds of the tree trunks are the White-headed *Sitella* and Brown and White-throated Tree Creepers. The *Sitellas* go in small parties and work in all directions, invariably head down. The Tree Creepers are found in pairs, and ascend the tree trunks in a spiral course, and always manage to be on the wrong side when you try to get a glimpse of them. The Silvereye, with his plaintive note, busies himself among the Lantana and Inkberry (*Phytolacca*). Likewise the beautiful little Mistletoe Bird finds much to occupy his time, for the district is heavily infected with *Loranthus*.

Of the number of Honey-eaters to be found in the district, only a few are permanent residents. Chief among these are the acrobatic White Nape, a species inordinately fond of bathing, the loud-voiced Lewin, the Noisy and Little Friar Birds, and, of course, the Noisy Miner.

In the open spaces around the reserve is found the Pipit, while the two representative Finches are the Chestnut Breast or "Bullie," which frequents the grass country and cultivated areas, and the Red-browed Finch which associates in large flocks and is found all over the reserve.

Much patient stalking has been necessary to certify that the Australian Raven is present at Mt. Coot-tha. Possibly the Crow is also there, but the identification of these two birds is always a problem in the field, and is not rendered any easier by their excessive wariness.

### OCCASIONAL VISITORS

In continued rainy weather along the creeks are to be seen the following species:—Black-fronted Dotterel, Spur-winged Plover, White and Straw-necked Ibis, Little Pied Cormorant, and White-faced Heron. The Black-fronted Dotterel is unusual, and is only seen along the creeks. As he is one of the migratory waders, it is possible that he is only breaking his migratory flight, but as his visits are only periodical, he is not classed as a regular migrant to the district. The Spur-winged Plover is very active and noisy in rainy weather, and can be

heard flying overhead at night. The White-faced Heron and two Ibis visit us, particularly when there are plenty of grasshoppers and other insects about. The White-breasted Sea Eagle can be seen overhead occasionally. This may appear strange, but when one remembers that this sea-bird follows up the Brisbane River for a considerable distance, and is known above the Enoggera Reservoir, his passing over Mt. Coot-tha can be easily accounted for.

That strange creature, the Pheasant Coucal, can be heard booming away on the lower and swampy portions of the reserve. He is a non-parasitic Cuckoo, and has no fixed migratory movements like the rest of his family. The Little Cuckoo Shrike is a rare visitor. The Spotted Quail Thrush is at present somewhat of a mystery. This year (1937) he appeared in the spring and built his nest, a neat little affair in a hollow at the foot of a tree. I have previous experience of him in the district, but only of odd birds. He is a strikingly-coloured bird, with more of the habits of the Quail and the Pipit than the Thrush, and is going to be kept under strict observation next time he appears in the reserve. The Gray Crowned Babbler has been seen, but does not nest in the reserve. It is a peculiar fact that over on the Enoggera Rifle Range and Ferny Grove side of the range, there are plenty of them, and their stick nests are everywhere, but over on the town side he is only an occasional visitor.

That dainty little fellow, the Double-Bar Finch, is not too plentiful at any time in this part of the country. He is mostly seen in odd pairs and does not stop long. Furthermore, one is always faced with the possibility that he may be an escapee from captivity, as many of them are trapped and caged every year.

The reserve at any time is liable to suffer from an influx of Currawongs, who take over control for a while, and then disappear as mysteriously as they came, which must be a great relief to the other feathered denizens if some of those tales we frequently hear about the Currawong's evil habits should happen to be true.

### NOMADIC AND MIGRATORY BIRDS

With the seasonal flowering of the eucalypts and other honey-bearing plants come flocks of Lorikeets, of which I have identified the Rainbow ("Bluey"), Scaly-breast ("Greenie") and Little ("Jerryang"). These are enthusiastically followed by the various species of Honeyeaters. That brilliant little gem, the Scarlet Honeyeater, or Blood Bird, as we usually call him, is generally looked upon as a harbinger of spring in the

southern States, but here, if the winter is mild, a few of them stay, and feed upon the Loranthus until the early spring when they will descend upon us in full force, and the air will be full of their brilliant high-pitched notes. Their arrival generally coincides with the blooming of the Callistemons, and no more beautiful sight could be imagined than a flock of Blood Birds feeding among the scarlet blossoms of this plant. The declamatory Brown Honeyeater is a wayward creature, who will be found wherever there is a feast of blossoms among which to disport himself, and there you will find him much in evidence. Likewise the Yellow Face or "Chick Up," as he is generally known because of his loud insistent note. He is a bird that is to be found generally in the winter months. Some years he is very numerous and usually stays until the spring, and then disappears. He is a very active and noisy bird, and inordinately fond of bathing. The Spinebill is another winter visitor. His short staccato trill is a feature of the colder months, and he generally leaves with the approach of warm weather. The Blue-faced Honeyeater seems to specialise in the flowering of the Moreton Bay Chestnut, because you are almost certain to find him on this tree and very seldom anywhere else, although he has a taste for cultivated fruits. He is not seen very often.

Spring migrants include the four species of Cuckoos, or "Storm Birds" as they are usually called irrespective of species, because they are accepted as reputable weather prophets by otherwise well-informed people. The Pallid prefers the open to wail his plaintive semi-tones. The Fantail, a very tame creature, prefers the forest. The Horsfield Bronze Cuckoo persecutes the smaller birds, and is a valuable destroyer of caterpillars; he is sometimes seen during the colder months. The Koel is that black-feathered scoundrel who, not content with persecuting his fellow creatures during the daylight hours, proceeds to make the night hideous with his "Coo-ee" or "Koel" or "Toowong," or whichever way you like to interpret it. In this he is aided and abetted by the lady of his choice, who answers with her own particular note.

No more interesting or delightful visitors to the reserve can be found than the migratory Flycatchers. Early in spring come the Rufous Fantail, Leaden, Black-faced and Speckled Flycatchers. The Rufous Fantail flits cheerily along the shady creeks. The handsome Black-Face is to be heard with his loud whistle as he takes an occasional dive out into the open to snap up



some unfortunate flying insect. The Leaden Flycatcher, with quivering wings and tail, can be heard grating away up above in the loftiest tree-tops, occasionally interspersing with a beautifully soft whistling note, "Pretty! Pretty! Pretty!" The Spectacled Flycatcher is rare and of a more retiring disposition. With the approach of warmer weather these charming creatures leave us, with the exception of the Leaden Flycatcher who sometimes stays for the summer, to visit us again on their return journey in autumn. Reluctant as we are to lose them during the colder months, we are just as anxious to renew the acquaintance of our winter visitors. Appropriately named Jacky Winter, though not strictly a migratory bird, he is more plentiful in the city and suburbs during the winter months, as he sits on a convenient post or stump swinging his white tail feathers, suddenly making a dive to capture some passing insect to return to his post and sing his charming song just to show how pleased he is with himself. Also the fussy Grey Fantail, with his tinny song and aerial acrobatics, as he takes over the duties of his departing Rufous relative. One of the most fascinating feathered creatures to visit the reserve is the Rose Robin who, with the Grey Fantail, leaves with the approach of the springtime migrants, though Jacky Winter, if conditions are congenial, will sometimes stay and build his tiny nest and rear a family.

Among other migrants is included that beautiful creature with the bad reputation, the Rainbow Bird, or Bee-Eater. Also somewhat of a nuisance to the apiarist is the Dusky Wood Swallow, a creature whose movements are hard to follow, but who is generally seen in large flocks during the winter months. This bird is one of the most graceful of flyers, and aside from his bee-eating proclivities is a valuable destroyer of noxious insects.

A spring visitor who is most erratic in his movements is that delightful canary-like songster, the White-winged Triller. Some seasons there will be dozens of them all over the place; other times you only see odd pairs. More reliable is his relative, the Cicada Bird, who visits us in the summer months when the Cicadas are most active. Besides devouring numbers of these insects, he mimics them so closely that his note is only known to the experienced ear. He, like many other birds, has a sweeter note that he utters occasionally, though it is not generally known. Closely associated with this bird is the pugnacious and attractive Drongo

who always seems to appear about the same time as the Cicada Bird. Whether this is because he also preys upon the Cicadas I am unable to say, but the appearance of these two birds always seems to coincide with the appearance of these insect hosts.

An occasional springtime visitor is the Reed Warbler who, as his name implies, is a creature of watery country, where he may chortle day and night to his heart's content. He sometimes takes it into his head to make excursions round the countryside, so is seen at times along the creeks and watercourses of the reserve.

Another springtime migrant is the Oriole, whose continual call can be heard all through the day. He also has some powers of mimicry. The Fig Bird is found in large flocks whenever there are some species of fig in fruit. In Brisbane he seems very numerous in the winter months.

The two species of Pardalotes, the Spotted and Black-headed, always visit the reserve in large numbers to nest in the winter. The Spotted, a brilliant little fellow, generally keeps to the tree-tops during the rest of the year, but resorts to the banks of the creeks to build his nest, and is very tame and easy to approach. The Black-headed nests in similar situations, and his loud "Chip! Chip! Chip!" is a familiar sound during the autumn and winter months.

### ACCIDENTAL BIRDS AND STRAYS

Strolling through the reserve in the vicinity of the Dams, I was astonished to see a male Regent Bower Bird fly overhead, and some time later I noted the Green-winged Pigeon on two occasions, and the Brown Pigeon once. As these birds are habitually residents of rain-forest country and would be totally unable to secure an existence in the type of country offered by Mt. Coot-tha. I can only account for their appearance by the fact that bush fires were raging in the neighbouring ranges, where rain forest would be found, and these creatures had been driven out of their natural haunt into strange territory.

Strange visitors also were a pair of Scarlet Robins, a species totally foreign to these parts, noted on one occasion in the winter of 1936. I am unable even to give a guess as to how they got there. About the same time I came upon a large flock of Yellow-tipped or Striated Pardalotes, a bird not usually seen in this part of the country, and they were in such large numbers that a mistake in identification was impossible, and

apparently were on the move, as I went a couple of days later to renew their acquaintance and found no trace of them. As the Museum is in possession of several skins of this species shot in the Moreton Bay district, it would seem that its presence here is not unprecedented.

Experiences of this description are familiar to all observers of wild life, and are interesting in that they serve two purposes, one of which is to warn the observer against jumping to conclusions, and the other is to remind ornithologists, who invent geographical and other boundaries to confine our birds, of the somewhat obvious fact that these delightful and interesting feathered friends of ours have wings—and frequently use them.

### THE "CRITICA BOTANICA" OF LINNAEUS

Translated by the late Sir Arthur Hort, Bt., M.A.

Revised by Miss M. L. Green, B.A., F.L.S., Botanist,  
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The present translation was finished at the Royal Botanic Gardens, Kew, England, after Sir Arthur Hort's death, by Miss M. L. Green, and has been published by the Ray Society. Lady Hort arranged through the Director of Kew Gardens, Sir Arthur W. Hill, who writes the introduction, to have a certain number of copies to distribute to botanists who might like to have the work. A copy has been presented to the Queensland Herbarium. The published price is 12/6.

Before the time of Linnaeus there was great confusion in botanical nomenclature. Every botanist was a law unto himself and chose his own way of giving names to plants.

Quite apart from the importance of the *Critica Botanica* as a basis of modern nomenclature, some of it makes quite interesting reading, and many of the names of early botanists mentioned are familiar to us in generic names in Australia, such as *Tournefortia*, *Dillenia*, *Oldenandia*, *Lippia*, *Plumiera*, and others.

In Linnaeus' opening chapter on Generic Names, he has the following:—"Even a rustic knows plants, and so maybe does a brute beast, but neither can make anyone else the wiser. . . . The botanist is distinguished from the laymen by the fact that the former is able to give a name which fits one particular plant and not another, and which can be understood by anyone all the world over." We wish sometimes we could repeat his definition of a botanist at the present day.

